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Negative Concord In Levantine Arabic

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Negative Concord In Levantine Arabic

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Negative Concord In Levantine Arabic

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This dissertation is a study of *negative concord* in Levantine Arabic (Israel/Palestine, Jordan, Lebanon, Syria), where negative concord is the failure of an *n-word* to express negative meaning *distinctly* when in syntagm with another *negative expression*. A set of *n-words* is identified, including the *never*-words *ʔɛbadan* and *bɪlmarra* "never, not once, not at all," the *negative minimizers hawa* and *qɛšal* "nothing," and the *negative scalar focus particle wala* "not (even) (one), not a (single)." Each can be used to express negation in sentence fragments and other constructions with elliptical interpretations, such as gapping and subsentential constituent coordination. Beyond that, the three categories differ syntactically and semantically. I present analyses of these expressions that treat them as having different morphological and semantic properties. The data support an ambiguity analysis for *wala*-phrases, and a syntactic analysis of it with *never*-words, indicating that a single, uniform

theory of negative concord should be rejected for Levantine Arabic.

The dissertation is the first such work to explicitly identify negative concord in Levantine Arabic, and to provide a detailed survey and analysis of it. The description includes subtle points of variation between regional varieties of Levantine, as well as in depth analysis of the usage of n-words. It also adds a large new data set to the body of data that has been reported on negative concord, and have several implications for theories on the subject. The dissertation also makes a contribution to computational linguistics as applied to Arabic, because the analyses are couched in Combinatory Categorial Grammar, a formalism that is used both for linguisic theorizing as well as for a variety of practical applications, including text parsing and text generaration. The semantic generalizations reported here are also important for practical computational tasks, because they provide a way to correctly calculate the negative or positive polarity of utterances in a negative concord language, which is essential for computational tasks such as machine translation or sentiment analysis.

Contents

Chapter 1

Introduction

This dissertation is a study of negative concord phenomenona in the Levantine varieties of Arabic, which include the Arabic vernaculars spoken in Syria, Palestine/Israel, Jordan, and Lebanon. The goals of the dissertation are two-fold: first, to present a body of fresh data in Levantine Arabic identifying negative concord phenomena; second, to present a formal analysis of certain generalizations emerging from this data, and to discuss the implications that these generalizations have for theories of negative concord.

1.1 Negative Concord

By *negative concord* I mean sentences in which multiple negative expressions co-occur in syntagm, but which are interpreted with the meaning of only one negation operator. To be more particular, I assume the following definitions:

(1) i. *Negative expression*: An expression that expresses predicate negation.

ii. *N-word*: A word that can be used to express negation in a sentence fragment.

iii. *Negative concord*: The failure of an n-word to express negation *distinctly* when co-occurring in a sentence with another negative expression.

According to these definitions, the necessary and sufficient property of an n-word is that it can be used to express predicate negation when used in a sentence fragment. As discussed by Giannakidou (2000, 2002) and Watanabe (2004), this criterion appears to reflect a consensus in the literature on negative concord on what it means to say that a word is an n-word.

A well-known example of negative concord is found in Spanish, in which n-words like *nada* "nothing," *nadie* "nobody" or *nunca* "never" express negative meaning when used alone as fragment answers (2) or at the beginning of a clause (3) (c.f. Laka, 1990; Vallduví, 1994; Suñer, 1995; Herburger, 1998, 2001; Espinal, 2000b,a; Guerzoni and Alonso-Ovalle, 2003; Aranovich, 2007, a.m.o.):[1]

(2) Q: Que quieres hijo?
what want.2s child
"What do you want, child?"

A: **Nada**.
nothing
"Nothing."

(3) **Nadie** me dijó **nada**.
no-one me said nothing
"No one told me anything."

However, when n-words follow a negative expression in sentences, they do not express negation distinctly, and have a meaning translatable as English *anybody* or *ever*, the negative meaning apparently being contributed by the negation particle *no* or by the pre-verbal n-word.

(4) a. **No** visté a **nadie**.
not saw.1s acc no-one
"I didn't see anyone."

[1] In example sentences, I show n-words and the expressions with which they concord in boldface.

b. **Nunca** dicé **nada** a **nadie**.
never said.1s nothing to no-one
"I never said anything to anyone."

The failure of n-words to express negation in such sentences is negative concord.

1.2 Levantine Arabic

Levantine Arabic is not a single dialect of Arabic but rather a family of dialects and varieties. It varies over a wide geographical area, including Syria, Palestine/Israel, Lebanon, and Jordan, as well as over a multitude of socio-economic variables, including urban vs. rural vs. Bedouin; degree of literacy and education; ethnic and religious background; and gender (c.f. Schmidt and Kahle, 1918; Holes, 2004; Feghali, 1928; Blanc, 1960; Cowell, 1964; Stowasser and Ani, 1964; Blanc, 1970; Palva, 1976, 1984; Ambrose, 1977; El-Hassan, 1978b,a; Mitchell, 1978; Abu Haidar, 1979; Cadora, 1976, 1979, 1992; Rosenhouse, 1984; Abdel-Jawad, 1986; Mitchell and al Hassan, 1994; Shahin, 2000; Onizan, 2005; Elihay, 2007, a.o.).

Characteristics of Levantine Arabic include:

(5) i. Socio-economic and ethnic variation (urban sedentary vs. rural sedentary vs. Bedouin vs. Druze);

ii. Regional/geographical variation (variation between regions, cities, geographical areas);

iii. Variation in level of education (e.g. educated vs. uneducated/illiterate);

iv. Common shared features: extensive vowel fronting/raising; *ši:* or *iši* for Standard Arabic *šeiy* "thing," *he:k*, *hæl-* "this," existential particle *fi:*, *bɪdd-* or *wɪdd-* "want,"

v. Values for phonemes: /q/ as [q], [g], [ʔ] or [k]; /θ/ as [θ], [t] or [s]; /ð/ as [ð], [d] or [z]; /ḍ/ as [ḍ] or [ð̣]; /ð̣/ as [ð̣] or [ẓ]; /k/ as [k], [c] or [č]; /a:/ as [a:] or [e:]; /u:/ as /u:/ or [o:]; etc.

The data presented here is taken mostly from Palestinian and northwestern Jordanian varieties, although there is some supplementary Syrian data, both collected through

elication or observation, and taken from published sources (especially Cowell 1964). Data sources include elicited data (collected in the US and in Jordan), observed data from naturally-occurring discourse (mostly in Jordan), Internet data, and data from published corpora, grammars and dictionaries, including Schmidt and Kahle (1918, 1930), Maamouri et al. (2005), Cowell (1964), Blau (1960), Stowasser and Ani (1964), al-Batina (2004), Tiedemann (2005), Elihay (2007), as well as video media including the films *Paradise Now*, *Rana's Wedding* (in Palestinian), and the Syrian comedy series *Spotlight* (*baqʕat ḍaw?*).

I note that the focus on Levantine Arabic with respect to the phenomena discussed here may be arbitrary to some extent. It may well be that very similar phenomena can be found in other regional varieties, such as Cairene Egyptian (as is strongly suggested by data presented by Woidich 1968), in which case it might be more accurate to talk about negative concord in, say, Eastern Mediterranean Arabic. However, establishing this would require close study of Egyptian Arabic data. More generally, it remains for further study how widespread negative concord is in other varieties of colloquial Arabic, and hence to what degree we can talk about negative concord as a property of Colloquial Arabic in general, rather than of particular regional designations.

1.3 Negative Concord in Levantine Arabic

I identify the following classes of words as n-words in Levantine Arabic: the negative scalar focus particle *wala* "not even (one), not a single" which selects or *associates* with singular indefinite noun phrases ("*wala*-NPs"); the *never*-words *ʔɛbadan* "never, not at all"; and *bɪlmarra*, and the negative minimizers *hawa* (lit. "air") and *gɛšal* (lit. "penury"). These each have different behaviors in negative sentences. Both *wala*-NPs and the *never*-words are subject to a licensing requirement in some contexts, while the negative minimizers never have to be licensed.

Of the three classes, *wala*-phrases show the most varied behavior. They generally do not require licensing, and can express negative meaning distinctly in a variety of syntactic

positions such as sentence-initial topic positions (6a-6b), causal adjuncts (6c), and predicate nominals (6d):

(6) a. **wala** **yoːm** ʕağabni lʔɛkal.
not.even day *pleased-me the-food*
"Not one day did the food please me."

b. **wala** **ktæːb** ʕɪrɪfɪt miːn kæːn ɪlli katabu.
not.even book *knew.1s who was* *rel wrote-him*
"Not even one book [was such that] I knew who it was who wrote it."

c. ʔɪnta zaʕlæːn ʕala **wala išši**.
you.ms angry *upon not.even thing*
"You are angry for nothing at all."

d. ʔana **wala** **išši**. ɪlmudiːr ɪlli mʊmkɪn isaːʕdak.
I *not.even thing the-director rel can* *3.help-you*
"I am nothing. [It's] the director who can help you."

Native speakers have a strong preference for *wala*-phrases to be licensed when they occur in *entailed argument positions* (by which I mean syntactic positions that correspond to existential entailments of a predicate) and are interpreted with new information focus.

(7) a. **wala** **ḥada** bɪddu yɪtʕašša maʕi.
not.even one *want.3ms 3.dine* *with-me*
"Not one person wants to have dinner with me."

b. mašʊft **wala** **waːḥad** mɪnhʊm.
not.saw.1s not.even one *from-them*
"I didn't see even one of them."

However, native speakers accept both licensed and unlicensed *wala*-phrases in syntactic positions which do not correspond to existential entailments, when they are interpreted with contrastive focus, or when they are used in in pragmatic contexts in which an ironic or otherwise *expressive* (c.f. Potts, 2003, a.o.) interpretation is intended. When they

are subject to the licensing requirement, *wala*-phrases can only be licensed by sentential negation morphemes, the translation equivalents of *biduːn* "without," *qabl* "before," and negative verbs such as *manaʕ-yɪmnaʕ* "forbid, prevent" or *baṭṭal-ybaṭṭɪl* "stop."

In contrast, *never*-words have to be licensed in all positions in full clauses. They can be licensed by all the expressions that can license *wala*-phrases, as well as by topical *wala*-phrases (sentence-initial *wala*-phrases interpreted as "indefinite topics," presupposing the existence of a contextually-specified set of referents over which the sentence quantifies). This means that *never*-words are subject to licensing requirements that are both stricter and more lenient than those to which *wala*-phrases are subject.

(8) a. wala ḥada šæfuː **ʔɛbadan**.
not.even one saw.3mp-him never
"Not a single person ever saw him."

b. hælfɪlɪm, **ʔɛbadan** mašʊftu.
this-the-film never not-saw.1s-him
"This film, I never saw it."

Unlike *wala*-phrases and *never*-words, negative minimizers are not subject to the licensing requirement at all, although they can be (at least for some speakers).

(9) a. kʊll ɪlʕarab mæːkliːn **hawa**, bɛss ɪlhawa lʔʊrdani ʔazka mɪn ɪlhawa
all the-Arabs eating air but the-air the-Jordanian tastier from the-air
lfɪlɪsṭiːni.
the-Palestinian
"The Arabs all have nothing, but the Jordanians have more nothing than the Palestinians do."
(lit. "The Arabs all are eating air, but the Jordanian air is tastier than the Palestinian air.")

b. bɪddak maṣaːri? bɪddak **gɛšal**!
want.2ms money want.2ms nothing
"You want some money? You're going to get nothing!"

In this respect they seem to be very much like the English vulgarisms *squat*, *shit*, *dick*, etc. in sentences like the following:

(10) a. So far, though, frontman Chris Martin has said **squat** about the opus, until he broke his silence to update the Smoking Section.

b. **None** of the candidates has said **squat** about what needs to be done.

(11) a. Before I begin, I should warn you that I know **dick** about fashion.

b. You **don't** know **dick** about the global implications of the Medieval Warm Period or the Little Ice Age.

Levantine Arabic n-words therefore fall into three different categories in terms of their usage in negative sentences.

The following are the basic questions raised by the data:

(12) i. How do multiple negations end up interpreted as just one? In other words, how does the concord effect work?

ii. Why do native speakers so strongly prefer entailed arguments to be licensed, in contrast to non-entailed arguments, which can be either licensed or not?

iii. Why are *never*-words required to be licensed in a larger set of contexts in comparison to *wala*-phrases?

iv. Why don't topical *wala*-phrases have to be licensed?

v. Why do topical *wala*-phrases license *never*-words, but not focal *wala*-phrases?

1.3.1 My Proposal

I argue that each class of Levantine Arabic n-words requires a different analysis, and therefore against a single unified analysis of Levantine Arabic n-words.

I argue that a close look at *wala*-phrases shows them to be inherently negative when used as sentence fragments, but nonetheless to be be ambiguous between two homophonous senses of scalar-*wala* that are derived from different etymologies. One I refer

to as strong-*wala*, which contributes negative operator scoping over a disjunction of two propositions, and which is derived etymologically from another *wala*-lexeme meaning "and not," or "not even." The second sense of scalar-*wala* I refer to as weak-*wala*, which does not contribute negative meaning, but which selects for an argument category that is morphologically marked as contributing a negation operator. In this respect, the analysis follows proposals by Herburger (1998, 2001); Déprez (1999, 2000)

I claim that the *never*-words are not inherently negative, in the sense of contributing negative meaning. Rather, they are polarity items very similar to English *ever* and *at all* in meaning, but which require the clauses they modify to be marked with a morphological negation feature corresponding to a negation operator in their meaning representations (c.f. Ladusaw, 1992; Giannakidou, 1998, 2000, 2002; Guerzoni and Alonso-Ovalle, 2003).

I treat the negative scalar focus particle *wala* as a focus-sensitive particle, in the sense that it selects and *associates with* an singular indefinite noun phrase with a focal interpretation, which consists of a pair $\langle A, B \rangle$, where B is the asserted meaning, and A is a focal presupposition (c.f. Fauconnier, 1975; Rooth, 1992; Kadmon and Landman, 1993; Lee and Horn, 1994; Krifka, 1995b; Rullmann, 1996; Lahiri, 1998; Horn, 2005; Giannakidou, 2007) or background entailment (c.f. Herburger, 2000) differing from B in terms of its value on a quantity scale (c.f. Rullmann, 1996; Israel, 1995, 2001; Aranovich, 2007).

There are three general approaches for such mechanisms in the literature on negative concord, differing in their particulars:

(13) *Syntactic Strategies*

i. Unification: These approaches assume formalisms for logical form construction that allow the negative operators in the interpretation of negative expressions to be identified. For example, Richter and Sailer (1999, 2004) argue for unification of negation operators via a scope disambiguitation procedure in the construction of a logical form.

ii. Feature-checking: These approaches associate semantic negation operators with a syntactic feature (such as a "*neg* feature"). N-words must "check" their negative features against the negation feature associated with a negation operator, which may be abstract,

or which may be contributed by the n-word itself.[2] An early version is the Neg-Criterion (c.f. Haegeman and Zanuttini, 1991, 1996; Haegeman, 1997), which is a global constraint requiring that negation markers and n-words be in a spec-head relationship with one another.[3]

iii. Polyadic quantifications/quantifier resumption: These approaches assume a semantic formalism that allows for polyadic quantification (i.e., quantification over tuples of variables rather than just over single variables), and invoke a rule allowing *quantifier resumption*, which allows for sequences of k quantifiers of arity n to be rewritten as a single quantifier of arity k^n.[4]

Of these, the unification and feature-checking approaches are primarily syntactic, while resumptive quantification is semantic.

I argue that the licensing requirement is primarily syntactic, and involves selectional restrictions on the kinds of arguments that n-words can combine with. In particular, I assume that morphological negation marking introduces a negative value for a *polarity* feature (c.f. Ladusaw, 1992; Guerzoni and Alonso-Ovalle, 2003; Zeijlstra, 2004; Dowty, 1994; Bernardi, 2002), and that n-words are specified as selecting for categories marked as $-neg$. However, while the licensing restriction is represented in terms of the syntactic combinatorics, it refers to semantic composition, given that the presence of negation marking on a syntactic category correlates with the presence of a negation operator in meaning representation.

[2] I treat this as a negation approach because of the association between the neg-feature and a negation operator. (c.f. Ladusaw, 1992; Giannakidou, 2000, 2002; Zeijlstra, 2004)

[3] A comparable stipulation is made by Richter and Sailer (1999, 2004), who assume that the presence of a negation operator scoping over the interpretation of a predicate must correlate with morpho-syntactic negation marking on the head of that predicate.

[4] See May (1989); van Benthem (1989); de Swart (1999b); de Swart and Sag (2002); Watanabe (2004); Iordachioaia (2009); Iordachioaia and Richter (2009). For a related approach using an operation called *factorization*, see Haegeman and Zanuttini (1996); Haegeman (1997).

1.4 Significance to Arabic Linguistics

To the best of my knowledge, negative concord has not been explicitly identified previously in any variety of Arabic. Small sets of data showing negative concord are to be found in descriptive grammars of Levantine and other dialects, as well as in the theoretical literature.

For example, Cowell's (1964) highly-regarded grammar of Syrian Arabic includes examples that satisfy the definitions of negative concord. Likewise, Woidich's (1968) detailed study of negative sentences in Egyptian Arabic (which appears to be very much like Levantine in the relevant aspects) includes examples that, when seen together, satisfy the definitions of negative concord. In the theoretical literature, *wala*-phrases (noun phrases or prepositional phrases containing *wala* have been referred to as negative quantifiers (c.f. Choueiri, 2002; Onizan, 2005; Souag, 2006), while *ʔɛbadan* "never, not at all," one of the *never*-words, has been referred to as a negative polarity item (c.f. Cantarino, 1975; Badawi et al., 2004; Mughazy, 2003). As such, the work presented here identifies Levantine Arabic as being a member of a large family of languages that show negative concord phenomena, and provides a detailed study of these phenomena, and therefore is of interest to the study of Arabic dialectal grammar and typology. (Woidich, 1968) presents very similar data for Egyptian Arabic.

Descriptions of Moroccan Arabic by Harrell (1962, 1965); Harrell and Sobelman (1966); Marçais (1977); Benmamoun (1995, 1997, 2006); Ouhalla (2002); Souag (2006) provide examples that satisfy the definitions in (1), but which are not identified as such, and have instead been analyzed as negative polarity items.

The work presented here, therefore, both identifies Levantine Arabic as a negative concord language, and presents interesting typological differences between negative concord sentences in the Levantine and Northwest African regions.

1.5 Significance to the Study of Negative Concord

The dissertation is also of interest to general linguistics because it welcomes Levantine Arabic to the very large family of languages that show negative concord phenomena. Negative concord is therefore a major linguistic phenemenon, and a veritable subfield of linguistics is devoted to its study. Some of the most widely cited or detailed work includes Jespersen (1917), Labov (1972), Haegeman & Zanuttini (1996), Laka (1990), Ladusaw (1992), Progovac (1993b), Vallduví (1994), Giannakidou (1998, 2000, 2002), Przepiórkowski (2000), Deprez (2000), Herburger (2001), Alonso-Ovalle and Guerzoni (2003), and Watanabe (2004).

Languages or language families in which negative concord has been identified as occurring include the following:

(14)
- Bantu (Jespersen 1917);
- Basque (Laka, 1990);
- Catalan (Vallduví, 1994; Espinal, 1999, 2000b,a; Tubau, 2008);
- Chomorro (Chung, 2004);
- Non-standard English (Labov, 1972; Ladusaw, 1992; Martin, 1992; Green, 2002);
- West Flemish (Haegeman and Zanuttini, 1996);
- French (Déprez, 1999, 2000; de Swart, 1999b, 2000; de Swart and Sag, 2002; Mathieu, 2001);
- Non-standard German (Bayer, 1990; Weiß, 2002);
- Modern Greek (Tsimpli and Roussou, 1996; Giannikadou, 2002);
- Hungarian (Kiss, 2002; Puskás, 2002; Surányi, 2002);
- Italian (Rizzi, 1982; Zanuttini, 1991; Acquaviva, 1999; Guerzoni and Alonso-Ovalle, 2003);
- Japanese (Watanabe, 2004);
- Passamaquoddy (Bruening, 2001);
- Polish (Witkoś, 1990; Blaszczak, 1998; Dziwirek, 1998; Przepiórkowski and Kupść, 1999);

- Portuguese (Matos, 1999);
- Romanian (Teodorescu, 2004);
- Russian (Brown, 1999);
- Serbo-Croatian (Progovac, 1993b, 2000);
- Spanish (Laka, 1990; Vallduví, 1994; Suñer, 1995; Herburger, 1998, 2000, 2001; Espinal, 1999, 2000b,b; Guerzoni and Alonso-Ovalle, 2003; Aranovich, 2007);
- Zapotec (Black, 1993)

The expression of negative concord varies from language to language along the following parameters:

(15) i. Etymological sources of n-words;
ii. Environments where n-words express negation;
iii. Properties of licensing environments;
iv. Locality restrictions on licensing.

In some negative concord languages, n-words contain the etymological reflex of a negation morpheme, while in others they do not. Many European negative concord languages belong to the former type. For example, in the Slavic languages and most of the Germanic and Romance languages, n-words include the morpheme /n-/, a reflex of the common Indo-European negation morpheme. Similarly, the Hungarian n-word *sem* is a blend of *is* "even, also" with *nem* "not" (Suryáni 2006). Levantine and Egyptian Arabic are similar in this respect, both using the scalar-*ala* particle.

Languages in which n-words do not have negation morphemes as their etymological source include French, Calatan (Espinal 2000), Modern Greek (Giannikadou 2002), and Japanese (Watanabe 2004). French n-words such as *personne* "nobody" or *rien* "nothing" and Catalan n-words *cap* "nobody," *res* "nothing," *gens* "nothing," *mais* "never" developed from indefinite negative polarity items that came to express negation through association with negative sentences.

Similarly, Japanese n-words consist of the particle *-mo* suffixed to question words (Watanabe 2004). These express negation in fragment answers (16), but undergo negative concord in clauses (17a), and are unacceptable in the absence of a negation marker (17b):

(16) Q: Nanio mita no?
what-acc saw Q
"What did you see?"

A: Nani**mo**.
what-even
"Nothing."

(17) a. Taro-wa nani**mo** tabe**na**katta.
Taro-top what-even eat-not-past
"Taro didn't eat anything."

b. * Taro-wa nani**mo** tabekatta.
Taro-top what-even eat-past

The *-mo* particle is also glossed as "also" or "even" (Shimoyama 2001), and has no etymological relation with a negation particle. As discussed in Chapter 6, Moroccan Arabic resembles Japanese in this respect, having n-words derived from morphemes which mean "even."

Given that some negative concord languages have n-words developed from negation morphemes while other negative concord languages do not, the etymology of an n-word in a given language is partially tangential to its ability to express negation. The connection between an n-word's etymology and its negative meaning is not arbitrary, however: Jespersen (1917) notes that there is a tendency for words or morphemes which mean something like "even," or which express minimal quantities of common objects, first become associated with use in negative sentences and then come to be able to express negation themselves. The historical process by which this change comes about is referred to as Jespersen's Cycle (Jespersen, 1917; Dahl, 1979).

Levantine Arabic has n-words belonging to both categories: the negative scalar focus particle *wala* contains the negation morpheme *la* "no, not" while the *never*-words *ʔɛbadan* and *bɪlmarra* do not contain such a morpheme, either synchronically or etymologically: *ʔɛbadan* as an n-word is derived from a homophonous word meaning "eternally" or "ever," while *bɪlmarra* is derived from a prepositional phrase meaning "in the once." Levantine therefore shows Jespersen's Cycle moving in two directions at once: a negation morpheme failing to express negation distinctly when in syntagm with another negative expression, and a word derived from a non-negative expression taking on negative force.

Negative concord languages also vary in terms of where n-words express negation and where they do not. According to the definition assumed above, all n-words express negation in fragment answers. However, in some languages (such as Spanish) n-words can express negation in full sentences, typically in clause-initial position. Giannakidou (1999, 2000, 2002) refers to the latter as strict negative concord languages and the former as non-strict (or partial) negative concord languages (see also Zeijlstra 2004; Watanabe 2004).

An example of a language with strict negative concord is Polish, in which n-words express negation only in fragment answers, satisfying the definition (c.f. Witkoś, 1996; Przepiórkowski and Kupść, 1997a,b, 1999; Przepiórkowski, 1999b, 2000; Dziwirek, 1998; Blaszczak, 1998, 2001a,b; Jablonska, 2003):[5]

(18) Q: Kogo widziałeś?
who.acc saw.2s
"Whom did you see?"

A: Nikogo.
no-one.acc
"No one."

Elsewhere, Polish n-words must co-occur with a negation particle whether they precede the verb or follow it:

[5]Thanks to Karolina Owczarzak for her help with Polish examples.

(19) a. **Nikt** *(**nie**) pomaga Jankowi.
no-one.nom not help.3s Janek.dat
"No one helps Janek."

b. Janek *(**nie**) pomaga **nikomu**.
Janek not help.3s no-one.dat
"Janek doesn't help anyone."

Furthermore, Polish n-words cannot license each other:

(20) **Nikt** *(**nie**) pomaga **nikomu**.
no-one.nom not help.3s no-one.dat
"No one helps anyone."

Other languages with only strict negative concord include other Slavic languages, Romanian, Modern Greek, and Japanese.

In contrast are the Spanish n-words such as *nada* "nothing" and *nunca* "never" illustrated above, which have to be licensed only in particular syntactic configurations, and generally not when they precede the verb. Accordingly, Spanish has been referred to as a *partial negative concord* language. Others include Italian, Catalan, Portuguese, West Flemish, and various English and German dialects.

Levantine Arabic has n-words in both categories: as illustrated above, *wala*-phrases undergo (for the most part) partial negative concord, as they do not have to be licensed when they occur in the pre-verbal position. *Never*-words, on the other hand, are strict negative concord items, because they must be licensed in all positions.

There is also variation in the "strength" of the negative expressions that are suitable licensors for n-words. Some n-words require "stronger" licensors, such as the Polish n-words, which require sentential negation marking or the translation equivalent of *without* for licensing. Languages in which n-words require strong licensors also include the other Slavic languages, Romanian, and Japanese.

In other languages, n-words can get by with weaker licensors. Examples of n-words tolerating weaker licensors include the Spanish n-words, which (as noted above) can undergo negative concord with a wider range of expressions than just those expressing predicate negation:

(21) a. With other n-words:

Nadie me dijí **nada**.
no-one me said nothing
"No one told me anything."

b. With *antes de* "before":

Antes de hacer **nada**, debes lavarte los manos
before of do nothing must.2s clean-dat.2s the.pl hands
"Before doing anything, you must wash your hands."

c. With superlative adjectives:

Es **la última vez** que te digo **nada**
is the.fs last.fs time that you say.1s nothing
"This is the last time that I tell you anything."

d. With verbs like *doubt*:

Dudo que vayan a encontrar **nada**.
doubt.1s that going.3p to find nothing
"I doubt that they are going to find anything."

Levantine Arabic again fails to fall into one category. As discussed in what follows, *wala*-phrases require "stronger" licensing than do the *never*-words, and the negative minimizers do not require licensing at all. This suggests that licensing strength requirements are properties of individual lexical items rather than of the grammar of a language as a whole.

So, in general, a close look at n-words in Levantine Arabic has a variety of implications for descriptive and theoretical classifications of negative-concord phenomena, and, in

particular, suggests that the categories in question are categories of lexical items rather than categories of grammars as a whole.

For example, a claim has been made in the literature (Giannakidou, 2000) that languages in which negative concord occurs can be divided into different typological classes, based on the particulars of how negative concord occurs in them, as follows:

(22) a. *Strict Negative Concord*: N-words must be licensed in all positions in full clauses.

b. *Non-Strict* or *Partial Negative Concord*: N-words need not be licensed in pre-verbal position.

(23) a. *Strong Negative Concord*: N-words must be licensed by negation morphemes.

b. *Weak Negative Concord*: N-words can be licensed by anti-additive morphemes.

The claim is then made that languages can be characterized as occupying the cells of the following table:

	Strict NC	Partial NC
Strong NC	Polish, Russian, Japanese,...	West Flemish,...
Weak NC	-	Spanish, Italian, Portguese,...

Table 1.1: Typology of Negative Concord Languages

The data examined in this study show that Levantine Arabic does not fit neatly into any one of these cells. Different classes of lexical items behave differently:

	Strict NC	Partial NC
Strong NC	*never*-words, *wala*-phrases *wala*-phrases (in "mute-*ma* sentences")	*wala*-phrases
Weak NC	-	-

Table 1.2: Classes of Levantine Arabic N-Words

This implies that Levantine Arabic, and likely other languages, cannot be classified as either a "strict" or a "partial" negative concord language. Rather, typologies of negative concord should focus on the properties of particular lexical items, as illustrated in Table 1.2.

1.5.1 Theoretical Approaches to Negative Concord

Given the amount that has been written on the subject of negative concord, it is neither possible nor desirable to do a detailed review of all the various proposals that have been made. Detailed literature reviews can be found in Giannakidou (2000, 2002); Blaszczak (2001b); Zeijlstra (2004); Iordachioaia (2009). For present purposes, I will review schools of thought in the theory of negative concord, rather than the specifics of different proposals.

1.5.1.1 The Inherent Negation Approach

While many analyses of negative concord have been proposed, several general analytical strategies can be identified. One is to treat n-words as being inherently negative (c.f. Labov, 1972; Haegeman and Zanuttini, 1991, 1996; Haegeman, 1995, 1997; de Swart, 1999b, 2000; de Swart and Sag, 2002; Richter and Sailer, 1999, 2004, 2006; Watanabe, 2004; Iordachioaia, 2009; Iordachioaia and Richter, 2009), meaning that n-words *contribute* negative meaning as part of their lexical meaning assignments. Inherent negativity approaches capture the negative meaning expressed by n-words used as sentence fragments, but must account for how it is that a sequence of several negative expressions can be interpreted as contributing only one negation operator to the meaning of a sentence. In other words, negation-approaches must explain why n-words must be licensed in some configurations, and how it is that they fail to express negation distinctly.

Various approaches have been taken to this, involving syntactic and/or semantic processes. One influential approach within transformational frameworks is to treat negative concord on analogy with question formation, assuming that n-words must raise to the specifier of a functional category (such as NegP) to be licensed. This requirement is referred to as the neg-criterion (a.o. Haegeman & Zanuttini 1996) in parallel to the wh-criterion (Rizzi 1996). This approach assumes that n-words are interpreted as negative quantifiers, and that negative concord involves a semantic construal rule called *factorization* which reinterprets a sequence of negative quantifiers by deleting all but one negation operator.

A related approach derived from generalized quantifier theory is to treat negative concord as involving *resumptive quantification*, in which a sequence of monadic negative quantifiers is transformed into a single polyadic negative quantifier (c.f. Watanabe, 2004). A comparable approach has been argued in HPSG by de Swart and Sag (2002) for French and by Iordachioaia (2009) and Iordachioaia and Richter (2009) for Romanian.

1.5.1.2 The NPI Approach

Another strategy, most prominently articulated by Laka (1990), Ladusaw (1992), Progovac (1991, 1992, 1993b) and recently elaborated by Giannakidou (1999, 2000, 2002), Blaszczak (2001b), Guerzoni & Alonso-Ovalle (2003) and Zeijlstra (2004), is to treat n-words as a kind of negative polarity item subject to particularly strict morphosyntactic licensing requirements. According to this approach, n-words are non-negative and are interpreted as indefinite noun phrases, with the negative meaning contributed either by an overt negation morpheme or by an abstract negation operator, whose presence is triggered by a morphosyntactic feature associated with n-words.

The NPI-approach has the advantage that it captures the *concord effect* directly: because n-words do not contribute negation, there is no need to delete extra negation operators. On the other hand, the NPI-approach has to explain how n-words are able to express negation without licensing in sentence fragments and other contexts. Many proposals within the NPI-approach assume that the negative meaning in elliptical contexts is provided by an abstract or implicit negation operator that is recovered from the context by means of ellipsis resolution (c.f. Giannakidou, 1998, 2000, 2002; Guerzoni and Alonso-Ovalle, 2003).

1.5.1.3 The Ambiguity Approach

A last strategy claims that n-words are ambiguous between inherently negative interpretations and indefinite NPI interpretations. Analyses of this kind have been proposed by Acquaviva (1999), Déprez (1999, 2000), and Herburger (2001). The ambiguity approach

is theoretically quite simple, because it requires neither that extra negations be deleted nor that abstract negations be introduced. However, in order to be falsifiable, the ambiguity approach requires evidence of non-complementarity between the negative and NPI-senses of n-words. Evidence of this sort is found in examples in which an n-word occurs unlicensed in a configuration in which licensing would otherwise be expected.

1.5.2 N-Words and Quantificational Force

Another point of difference in the negative concord literature is whether n-words should be treated as generalized quantifiers — functions of type $(et)t$ denoting relations between sets — or as "Heimian" indefinites, by which is meant meanings that introduce a variable that is bound by a superordinate operator or by an "existential closure" operation.

The quantifier approach has been argued for by Haegeman and Zanuttini (1996), Giannakidou (2000, 2002), and Guerzoni and Alonso-Ovalle (2003), who argue that n-words should be treated either as strong (i.e., presuppositional) universal quantifiers as in (24a), or as weak (i.e., non-presuppositional) existential quantifiers as in (24b):

(24) a. $\lambda P_{et}.\forall x[(Qx \wedge Cx) \rightarrow \neg Px]$ (for some set Q and a contextually specified domain C)

b. $\lambda P_{et}.\neg\exists x[Qx \wedge Px]$ (for some set Q)

Approaches that treat n-words as quantifiers are challenged by data showing split-scope interpretations (discussed in Ch.2), as has been discussed by Iordachioaia (2009).

1.5.3 Syntactic vs. Semantic Licensing

Still another point of debate in the negative concord literature is whether negative concord should be seen as a properly morphosyntactic process or as a semantic process. According to the former view, negative concord is indeed a kind of concord, much like subject-verb agreement or noun-adjective case concord in a language like Standard Arabic or German

that has nominal case-marking. According to the latter view, negative concord results from semantic construal, and so does not actual involve concord in the traditional sense.

Analyses that treat n-words as negative polarity items tend to treat negative concord as a morphosyntactic process, because, in this analysis, n-words lack negative meaning (c.f. Laka, 1990; Progovac, 1991, 1992, 1993b, 2000; Suñer, 1995; Benmamoun, 1997; Giannakidou, 2000, 2002; Blaszczak, 2001b; Guerzoni and Alonso-Ovalle, 2003; Zeijlstra, 2004; Aranovich, 2007, a.o.).

Likewise, analyses that treat n-words as inherently negative tend to appeal to semantic rules to derive negative concord, such as the *factorization* or *resumptive quantification* analyses discussed just above.

1.5.4 Glossing Conventions

As much as possible, I use glossing conventions that look like English prose. In particular, pronominal morphemes are glossed with their English equivalents wherever possible. To illustrate, Table 1.3 shows glossing conventions used for clitic pronouns.

Pronoun	*Morpheme Gloss*	*English Paraphrase*
-ni, **-i**	-cl1s	-me, -my
-na	-cl1p	-us, -our
-ak	-cl2ms	-you.ms, -your.ms
-ɪk, **-ɪč**	-cl2fs	-you.fs, -your.fs
-kʊm, **-kʊn**	-cl2p	-you.p, -your.p
-kʊm, **-čɪm**, **-ku**	-cl2mp	-you.mp, -your.mp
-kʊn, **-čɪn**	-cl2fp	-you.fp, -your.fp
-u, **-ː**, **-ɛ**	-cl3ms	-him, -his
-hæː, **-æː**	-cl3fs	-her
-hʊm, **-hʊn**	-cl3p	-them, -their
-hʊm, **-hɪm**,	-cl3mp	-them.mp, -their.mp
-hʊn, **-hɪn**	–cl3fp	-them.fp, -their.fp

Table 1.3: Glossing Conventions for Clitic Pronouns

In general, only information that is morphologically marked is glossed. For example, the bare form of a participle or adjective is interpreted as being 3rd-person masculine-

singular, but is not marked as such. The 3rd-person feminine singular form, however, is typically marked with the *taa-marbu:ṭa* "bound t" suffix, and as such person and number information is included. For example, the bare stem of the adjective *ṭawi:l* "tall, long" is interpreted as masculine singular, while the stem marked with the bound-t suffix is interpreted as feminine singular:

(25) a. walad ṭawiːl
boy long
"a tall boy"

b. bɪnt ṭawiːla
girl long.fs
"a tall girl"

Arabic verb stems have two finite forms and two participial forms: the perfect, the imperfect, the active participle, and the passive participle. These are glossed with the present, past, and participial forms of the English equivalents. In other words, the English present tense of a gloss represents the imperfect stem of the verb in question, while the English past tense form represents the perfect.

(26) a. kɛtɛb
wrote
"(He) wrote, has written"

b. yɪktɪb
3.write
"(He) writes, write"

Similarly, English active and passive participles are used to gloss the Arabic active and passive participles:

(27) a. kæːtɪb
writing
"(is/am/are) writing"

b. maktuːb
written
"written"

Note that verbal agreement marking is still shown as an alphanumeric tag, such as "1s" for first-person-singular, "3mp" for third-person masculine plural.

Word-internal inflectional and derivational morphemes (where glossed) are separated with periods, while clitics are glossed with "-" separators. For example, *mabaḥɪbbuːš* "I don't like him/it" shows the negation proclitic *maː-*, the indicative mood proclitic *b-*, as well as the 3rd-person-singular pronoun enclitic *-uː* "him" and the negation enclitic *-š* affixed to the verb stem *aḥɪbb* "I love," which itself contains the agreement prefix *a-*.

(28) mabaḥɪbbuːš
/ maː-b-a.ḥɪbb-uː-š /
not-ind-1s.like-him-neg
"I don't like him/it."

1.6 Organization

The dissertation is organized as follows: Chapter 2 presents the formal and theoretical tools that will be used in the subsequent descriptions and analyses. 2.1 presents a compositional version of Discourse Representation Theory (c.f. Kamp, 1981; Kamp and Reyle, 1993), λ-DRT (c.f. Muskens, 1994a,b; Kuschert, 1996; Eijck and Kamp, 1997), that will be used for meaning representations. 2.2 presents an overview of Combinatory Categorial Grammar (Steedman, 1996, 2000b; Baldridge, 2002; Baldridge and Kruijff, 2003; Steedman and Baldridge, 2010), which is used for representing syntactic derivations and meaning construction.[6]

[6]The use of DRT and CCG are not strictly necessary for analyzing the data: paraphrases of the analysis could be made in other representations, such as predicate logic for the meaning representation, and another syntactic framework such as transformational grammar or HPSG for the grammar.

Chapter 3 presents a fragment of Levantine Arabic grammar in the formalisms in question, and focuses on the aspects of Levantine grammar that are relevant for the study of Levantine negative concord. These include the basics of clauses syntax, such as word order, agreement, compound tense-aspect marking, and negation; an analysis of the Arabic prepositional phrases and the construct state possessive construction; the syntax and interpretation of "pro-drop" and resumptive pronouns, both of which are pervasive in Levantine Arabic; the interpretation of sentence fragments; and a sketch of the interaction of word-order and information structure.

Chapter 4 presents the core data of the dissertation, consisting of descriptions of Levantine Arabic n-words and their distribution. I also present the analyses that I propose for Levantine negative concord sentences. I describe the distribution of n-words in different sentences types and their behavior with respect to negative concord. I argue that there are two lexemes for scalar-*wala*, one of which is inherently negative and one of which is not, but which selects for a negative constituent and which is therefore subject to a morphosyntactic licensing requirement. The *never*-words are like weak-*wala* phrases in that they select for a negative-marked category. I then discuss the use of n-words in sentence fragments.

In Chapter 5, I motivate the analysis presented in Chapter 4 by providing evidence that Levantine Arabic n-words are inherently negative. There are three kinds of evidence: first, n-words used in fragments in answer to a negative question, necessarily have double-negation interpretations, which suggests that they contribute negative meaning in addition to the negation meaning inherent in the question. Second, treating n-words as non-negative indefinites (as per the NPI approach) requires that negative meaning be recovered contextually from the question meaning being answered, and so incorrectly predicts that other polarity-sensitive expressions can be used in fragment answers. In particular, doing so incorrectly predicts that the NPI adverb *ʕʊmr* "ever" can be used as a fragment answer. Third, the interpretations of the "still-words" *lɪssa* and *baʕd* "still, yet" used in fragments gives evidence that contextual negation can license polarity-sensitive interpretations, as per

the NPI-approach, but that it cannot do so for the n-words.

In Chapter 6, I address the problem of why strong-*wala* phrases cannot license negative concord interpretations with weak-*wala* phrases, whereas strong-*wala* phrases can license negative concord with the *never*-words. The analysis developed in Chapter 4 predicts the contrary: strong-*wala* phrases should license weak *wala*-phrases, just as strong-*wala* phrases can license *never*-words. I conjecture that this is due to a difference in the information structure requirements that each version of *wala* imposes on its arguments.

According to the conjecture, weak-*wala* inherits from *nor-wala* (its etymological progenitor) a requirement that it combine with an incomplete new-information or *rhematic* constituent, which I implement using an adaption of Steedman's (2000a) analysis of information structure in English. By contrast, strong-*wala*, having a topical interpretation, combines with a complete information unit, and returns the same, rendering it an unacceptable argument for a weak-*wala*-phrase. I treat the *never*-words as being non-restricted information-wise, allowing them to combine with both constituents containing strong-wala phrases and those containing weak-wala phrases.

I further argue that this approach accounts for what I call the "mute-*ma*" constructions, in which a pre-verbal weak-*wala* phrase has a concordant interpretation with a following negation morpheme. This construction is particularly prevelant in Syrian Levantine, but also occurs in Jordanian and Palestinian in interrogative clauses in which the *wala*-phrase is preceded by a question word, as well as in subordinate clauses in which the *wala*-phrase is preceded by a subordinating particle. I argue that these two contexts force a parse of the *wala*-phrase in a predicate-internal position, and therefore as part of the new-information field of the clause.

I also briefly examine negative concord sentences in Northwest African Arabic (or *Maghrebin* Arabic: Tunisia, Algeria, Morocco), in which n-words behave consistently like Levantine *never*-words, requiring licensing in all positions. I argue that Maghrebin n-words are like Levantine weak-*wala* phrases, being limited to new-information interpretations.

This comparison is supported by the observation that Maghrebin Arabic speakers have a higher tolerance for new-information interpretations of pre-verbal indefinite noun phrases, whereas Levantine speakers are more strongly inclined to interpret pre-verbal indefinites as topical. The differences between Levantine and Maghrebin can then be correlated with the different information structure interpretations available to indefinite noun phrases in clausal word order.

Chapter 2

Formal Preliminaries

In this chapter, I present the formal frameworks that I use for representing meaning and syntactic derivation. These are a compositional version of *Discourse Representation Theory* (λ-DRT: Kamp 1981; Kamp and Reyle 1993; Muskens 1994b; Kuschert 1996; Eijck and Kamp 1997) for meaning representation, and *Combinatory Categorial Grammar* (CCG: Steedman 1996, 2000b,a; Baldridge 2002; Baldridge and Kruijff 2003; Steedman and Baldridge 2010). For each I propose minor modifications in order to capture more easily the empirical generalizations that I describe.

2.1 Meaning Representation

For meaning representation, I assume a version of compositional Discourse Representation Theory (λ-DRT) based on Eijck and Kamp (1997), although nothing in particular hangs upon this; a predicate logic with quantifiers could also be used. I have chosen DRT as a representation language because it removes existential quantification from logical form and locates it in satisfaction conditions. This allows the meaning representation to capture directly an intuition that some uses of indefinite noun phrases differ in their scope-taking capabilities from other kinds of noun phrases that are more clearly quantificational, such as

noun phrases headed by English *every* or Arabic *kʊll* "every, each, all."

2.1.1 Definitions of Lambda-DRT

I assume a λ-DRT based on the following definitions:

(1) *Definition of DRSs*: Let A be a set of constants, and v a set of discourse reference markers (RMs), $PRED$ a set of predicates of varying arity, and a set $PVAR$ of predicate variables P, Q, R, etc. For each DRS D with a (possibly empty) set (or *universe*) of RMs X, X is partitioned into two (possibly empty) sets of RMs $fix(D)$ and another set of RMs $intro(D)$. DRSs are then defined as follows:[1]

(2) a. if v is a marker, v is a DRS.

b. If x is a marker variable $\in X$, then x is a DRS.

c. $\top$ is a DRS.

d. If $t_1 \ldots t_n$ are terms and p is an n-place-predicate letter, then $p(t \ldots t_n)$ is a DRS.

e. If $t_1 \ldots t_n$ are terms and P is an n-place-predicate variable, then $P(t \ldots t_n)$ is a DRS.

f. If v is an RM and t is a term, then $t = v$ is a DRS.

g. If D is a DRS, then $\neg D$ is a DRS.

h. If D_1, D_2 are DRSs, then $(fix(D_1) \cup intro(D_1)) \cap intro(D_2) = \{\}$, then $D_1; D_2$ is a DRS.

i. If D is a DRS and ϕ an expression of λ-DRT, then $\langle \phi, D \rangle$ is a DRS.

j. If i and j are RMs or RM variables, then $i \oplus j$ is a DRS.

k. Nothing else is a DRS.

The set v of reference markers is multi-sorted, and include the following sorts: *individuals* (or *entities*) (represented with letters i, j, k), *eventualities* (represented with letters e_n), *times* (represented with letters t_n), and *degrees* (represented with letters n_n). The sorts of

[1] The partitioning of the universe of a DRS D into the sets of reference markers $fix(D)$ and $intro(D)$ follows Eijck and Kamp (1997). The purpose of this is to ensure that new reference markers introduced are fresh.

individuals and eventualities are closed under summation, in order to model plural semantics (c.f. Kamp and Reyle, 1993).

I assume that DRSs are interpreted dynamically, meaning that they are functions over assignment functions:

(3) A DRS D is true w.r.t. a model M (which is a pair $\langle D, I\rangle$ of a domain D and an interpretation function I) and a world w given an assignment s iff there is an assignment s' such that ${}_s[\![D]\!]^{M,w}_{s'}$.

(4) *Satisfaction Conditions*: Given a model M and a world w :

a. ${}_s[\![v]\!]^{M,w}_{s'}$ iff $s[v]s'$.

b. ${}_s[\![\top]\!]^{M,w}_{s'}$ iff $s = s'$.

c. ${}_s[\![P(t_1, \ldots, t_n)]\!]^{M,w}_{s'}$ iff $s = s'$ and $\langle V_{M,s}(t_1), \ldots, V_{M,s}(t_n)\rangle \in I(P)$.

d. ${}_s[\![v = w]\!]^{M,w}_{s'}$ iff $s = s'$ and $s(v) = V_{M,s}(w)$.

e. ${}_s[\![\neg D]\!]^{M,w}_{s'}$ iff $s = s'$ and for no s'' is it the case that ${}_s[\![\neg D]\!]^{M,w}_{s''}$.

f. ${}_s[\![D,\ D]\!]^{M,w}_{s'}$ iff there is an s'' such that ${}_s[\![D]\!]^{M,w}_{s''}$ and ${}_s[\![D']\!]^{M,w}_{s'}$.

g. ${}_s[\![\langle\pi\rangle\, D]\!]^{M,w}_{s'}$ iff there is a world w' π-accessible from w and an s'' such that ${}_s[\![D]\!]^{M,w'}_{s''}$.

h. ${}_s[\![(\phi; D')]\!]^{M,w}_{s'}$ iff if ϕ is a term and $cq = \phi$, then ${}_s[\![D]\!]^{M,w}_{s'}$.

i. ${}_s[\![pro'_x\phi]\!]^{M,w}_{s'}$ iff there is some v in $dom(s)$ and accessible from x such that $s(v) \in V_{M,s}(\phi)$

Several aspects of the definitions above depart from Eijck and Kamp's (1997) lambda-DRT. First, I augment the DRS to include variables over reference markers (given as x, y, etc.), and variables over predicates (given as P, Q, etc.). However, DRSs containing unbound variables do not have an interpretation (I refer to these as *open* DRSs), which will be exploited in modeling pronominal reference.

I assume some notational conventions and abbreviations for making logical forms more readable. First, I alternate freely between the familiar "box" notation for DRS-conditions, and a horizontal format in which conjoined conditions are listed as comma-separated (c.f. Muskens, 1994b; White, 2006),

(5) a. $[\, p\,,\ q\,] = \boxed{\begin{array}{c} p \\ \\ q \end{array}}$

b. $(p\ ;\ q) = \left\langle \begin{array}{c} p \\ ; \\ q \end{array} \right\rangle$

Second, I assume a "prose format" for formula that are intended to be more readable than usual DRT notation (examples have been given above).

(6) a. *sanwiːčɛ* $\vdash \lambda P_{et}.Pk\ ;\ [\ sandwich'k\ ] = \lambda P_{et}.P(\mathsf{sandwich}_k)$

b. *ʔɛkaɪt* $\vdash \lambda y.[\ ei \mid speaker'i\,,\ eat'ei\,,\ past'e\ ] = \lambda y.[\ \mathsf{I}_i\ \mathsf{ate}_e\ y\ ]$

c. *bɪddi* $\vdash \lambda P_{ed}.[\ ei \mid speaker'i\,,\ \Box[\ Pi\ ]\ ] = \lambda P_{ed}.\mathsf{I}_i\ \mathsf{want}_e\ \mathsf{to}\ P(\mathsf{I}_i)$

Further such abbreviations are introduced later.

Next, I assume two rules of inference for manipulating DRSs. The first is *RM-Introduction* from Kamp and Reyle (1993), which allows introduction of an RM into the universe of a DRS:[2]

(7) *RM-Introduction*

$A \vdash \mathsf{s} : Pi \quad \Rightarrow_{RM} \quad A \vdash \mathsf{s} : [\ i \mid Pi\ ]$

(where P is a set of conditions closed under conjunction)

The second rule is a *DRS-Simplification* rule that allows trivially subordinated DRSs to be simplified as one:

(8) *DRS-Simplification*

$[\ i \mid Qi\,,\ [\ j \mid Pj\ ]\ ] \quad \Rightarrow_{DRS-S} \quad [\ ij \mid Qi\,,\ Pj\ ]$

(where P and Q are sets of conditions closed under conjunction)

I assume that pronouns (including verbal subject agreement-marking) introduce presuppositions looking for accessible referents matching gender, number and person con-

[2]The standard notation format for representing DRSs is Kamp's box-notation (c.f. Kamp, 1981; Kamp and Reyle, 1993). For the sake of space I use a linear notation proposed by Muskens (1994b).

ditions (such as $speaker'$ or $listener'$). These conditions need to be included in semantic representations (c.f. Kamp and Reyle, 1993, 72-73) in order to capture agreement in pronominal anaphora, as well as in relativization over resumptive pronouns.

I represent prononimal presuppositions with an operator pro', which takes as its arguments a discourse referent and a condition (or set of conditions closed under conjunction):

(9) a. **šʊft-u** "I saw him/it" $\vdash \lambda x.[\, i \mid saw'ix\,,\ pro'_i(speaker')\,,\ pro'_x(3ms')\,]$

b. **šʊft** "I saw" $\vdash \lambda x.[\, ix \mid saw'ix\,,\ pro'_i(speaker')\,]$

c. **-u** "him" $\vdash \lambda P_{et}.[\, x \mid Px\,,\ pro'_x(3ms')\,]$

The pro' operator could be understood as a stand-in for a representation of pronominal presupposition in the style of Geurts and van der Sandt (2004) or Beaver (2001). However, since presupposition is not the topic of this dissertation, I do not elaborate here. In subsequent derivations, the types in (9) are represented with the following "prose" formulas:

(10) a. **šʊft-u** "I saw him" $\vdash \mathsf{s} : \mathsf{I}_i\ \mathsf{saw}_e\ \mathsf{him}_x$

b. **šʊft** $\vdash \mathsf{s/np} : \lambda y.[\, \mathsf{I}_i\ \mathsf{saw}_e\ y\,]$

c. **-u** "him" $\vdash \mathsf{s\backslash(s/np)} : \lambda P_{et}.[\, x \mid Px\,,\ \mathsf{him}_x\,]$

I next assume the following DRS-rules that allow pronominal presuppositions to "percolate" or "project" upwards from an embedded DRS (where D is a DRS):[3]

(11) a. *Negation Pronoun Projection*

$$[\, \phi\,,\ \neg[\, i \mid pro'i(cond')\,,\ \phi\,]\,] \quad \Rightarrow_{\neg-proj} \quad [\, i \mid \phi\,,\ pro'i(cond')\,,\ \neg\phi\,]$$

b. *Disjunct Pronoun Projection*

$$[\, \phi\,,\ [\, i \mid pro'i(cond')\,,\ \phi\,] \vee D\,] \quad \Rightarrow_{\vee-proj} \quad [\, i \mid \phi\,,\ pro'i(cond')\,,\ \phi \vee D\,]$$

[3]This is not intended as an analysis of presupposition projection as a general matter. Rather, it is a technical device intended to make embedded pronoun conditions available for the application of the λ-rule introduced below on page 47. These may not be meaning-preserving transformations.

c. *Implication Pronoun Projection*

$$[\,\phi\,,\,[\,i \mid pro'i(cond')\,,\,\phi\,] \Rightarrow D\,] \quad \Rightarrow_{\Rightarrow -proj} \quad [\,i \mid \phi\,,\,pro'i(cond')\,,\,\phi \Rightarrow D\,]$$

These are used to feed a rule introduced below that derives λ-abstracts from pronominal meanings.

Lastly, I assume an additional kind of DRS for representing focus-background meaning pairs, which are important for representing the meanings of focus-sensitive operators. These are pairs of basic DRSs connected with the sequential merge operator ";" and assigned type $\langle dd \rangle$.

For example, the interpretation of focus on the indefinite pronoun *iši* "thing" is as in (12a), with the prose-format in (12b):

(12) a. **iši** $\vdash \lambda R_{ed}.\left\langle \begin{array}{c} [\,kn \mid Rk\,,\,thing'k\,,\,|k| = n\,,\,n \geq 1\,] \\ ; \\ [\,kn \mid Rk\,,\,thing'k\,,\,|k| = n\,,\,n = 1\,] \end{array} \right\rangle$

b. **iši** $\vdash \lambda R_{ed}.\left\langle \begin{array}{c} R(\mathsf{things}_k) \\ ; \\ R(\mathsf{one}_k\ \mathsf{thing}_k) \end{array} \right\rangle$

In order to interpret focal-background DRSs, I assume that among the parameters of evaluation in a model (including moment of speech, speaker(s), listener(s), location, etc) is the *current question* (cq), the value of which is a question meaning. For present purposes, I assume that a question meaning is an *open formula* containing an unbound variable corresponding to the question word. Search for an answer can then be thought of as search for a binding for this variable.

For example, the meaning of the question in (13a) is (13b) with a first-order object, or (13c) with a raised object (assuming that the addressee of the question corresponds to the referential index i):

(13) a. šu ʔɛkalti?
what ate.2fs

"What did you eat?" "What have you eaten?"

b. $\mathsf{I}_i\ \mathsf{ate}_e\ y$

c. $R(\lambda y.[\ \mathsf{I}_i\ \mathsf{ate}_e\ y\ ])$

Accordingly, the satisfaction condition for a focal-DRS is as follows:

(14) An assignment s satisfies $\langle \phi, D \rangle$ with respect to M, cq iff $\phi \stackrel{\epsilon}{=} cq$ and s satisfies D in M. (where $\stackrel{\epsilon}{=}$ means "is equal to under entailment"; c.f. Gardent 1997, 2000)[4]

The elements in a focus-background pair are manipulated by focus-sensitive operators such as the scalar focus particle *wala* discussed at length in the following chapters. The meaning representations of focus-sensitive particles access the elements of a focus-background pair by means of projection functions π^1 and π^2, as defined in (15), as well as the extended definitions in (16) allowing for accessing projections inside lambda-terms (for notational convenience):

(15) i. $\pi^1(\langle P, Q \rangle) = P$

ii. $\pi^2(\langle P, Q \rangle) = Q$

(16) i. $\pi^1(\lambda X.\langle P(X), Q(X) \rangle) = \lambda X.P(X)$

ii. $\pi^2(\lambda X.\langle P(X), Q(X) \rangle) = \lambda X.Q(X)$

For mnemonic convenience, I label π^1 as $[\theta]$ and π^2 as $[\rho]$.

These meaning pairs are intended to be suggestive of a partition into a *theme-rheme* (c.f. Steedman, 2000a,b) or a *topic-focus* (c.f. Kruijff, 2001) pair, or as focus-background pairs in the Structured Meanings semantic framework (c.f. Krifka, 1991, 1992, 1993, 1995b, 2001, 2006).[5] However, I demur on the point of whether the first element in the pair should be treated as a presupposition in the sense of being a test on a context in terms of satisfaction or binding (c.f. Karttunen and Peters 1979; Heim 1990; Beaver 2001, a.m.o.), or

[4] Equality here could be resolved using *higher-order unification* (c.f. Huet, 1975; Dalrymple et al., 1991; Gardent et al., 1996; Gardent and Kohlhase, 1996a,b, 1997; Gardent, 1997, 2000).

[5] Bierner (2001) makes similar proposals within the CCG framework for the analysis of alternative phrases.

as a "backgrounded" (c.f. Herburger, 2000) or "unasserted" entailment (c.f. Horn, 2002; Roberts, 2006; Beaver et al., 2009).

Another assumption I make has to do with the interpretation of indefinite noun phrases. In $lambda$-DRT, indefinites are analyzed in a way (e.g., as in 17a) that is largely equivalent to the generalized quantifier treatment in Montague grammar (e.g., as in 17b):

(17) a. **iši** $\vdash \lambda Q_{et}.[\, i \mid thing'i\,,\ Qi\,]$

b. **iši** $\vdash \lambda Q_{et}.\exists i[thing'i \wedge Qi]$

DRT makes a theoretical claim to the effect that the existential quantification associated with an indefinite resides in the embedding conditions for a formula, rather than from an operator in the logical form itself, but the DRT analysis is truth-conditionally equivalent to a generalized quantifier analysis because it introduces a discourse referent in a DRS-universe that scopes over the predicate argument of the noun phrase.

I assume, to the contrary, that indefinites are specified with an empty DRS universe, and that they merely apply a (fresh) reference marker of the predicate argument, as in (18) without introducing that reference marker into the universe of the DRS:

(18) **iši** $\vdash \lambda Q_{et}.[\, thing'i\,,\ Qi\,]$

The reference marker introduced by an indefinite is added to the universe of the DRS containing it by the Kamp and Reyle's (1993) *RM-Introduction* rule given above in (7). This is illustrated in the derivation in (19b), in which the reference marker k is introduced into the universe of the derived DRS by the RM-Introduction rule:

(19) a. ʔɛkalɪt sanwiːčɛ.
ate.1s sandwich
"I ate a sandwich."

b. $\lambda P_{ed}.Pk$; $\boxed{sandwich'k}$ $\lambda y.\dfrac{\boxed{i}}{\boxed{speaker'i\ ,\ eat'eyi\ ,\ past'e}}$

FA

$\dfrac{\boxed{i}}{\boxed{speaker'i\ ,\ eat'eki\ ,\ past'e}}$; $\boxed{sandwich'k}$

$Merge$

$\dfrac{\boxed{i}}{\boxed{speaker'i\ ,\ eat'eki\ ,\ past'e\ ,\ sandwich'k}}$

$RM-Intro$

$\dfrac{\boxed{ik}}{\boxed{speaker'i\ ,\ eat'eki\ ,\ past'e\ ,\ sandwich'k}}$

The result of this derivation is equivalent to what would be the result if *sandwich* were analyzed with a type like the one in (17a). However, my proposal is useful for capturing the intuition that at least some indefinites have no quantificational force of their own, and instead pick up their quantificational force from some operator. The proposal, in effect, assigns indefinites the lowest possible scope, and then would rely on various rules of inference to derive higher scope readings.

Modal interpretation will play an important role in the following discussion, so I make some simple assumptions about the representation of modality in DRT. I follow the traditional assumption that interpretation is relative to possible worlds, and that various modal operators shift worlds. I assume the usual possibility and necessity operators:

2.2 Combinatory Categorial Grammar

For syntactic representations, I assume Combinatory Categorial Grammar (CCG: c.f. Steedman 1996, 2000b; Baldridge 2002; Baldridge and Kruijff 2003; Steedman and Baldridge 2010).

The basic idea behind CCG is very simple. A syntactic expression is a pair, consist-

ing of a form (usually a word or a group of words) and a *category type*, where "expression" can be anything from a morpheme or even a suprasegmental feature (such as a tone or accent) to a word or string of words. The category type consists of a second pair, typically separated by a colon. The first element of the pair is a *syntactic type*, corresponding roughly to part-of-speech, and which is a linearization of the the second element of the pair: a semantic type, typically represented as terms of the typed lambda-calculus:

(20) **expression** $\vdash$ category : $term$

The idea is that the syntactic type specifies the linear order in which the expression can combine with other expressions.

Category types are defined in terms of basic types and higher types, which are functions (or *functors*) over basic types. For example, using the lambda calculus to represent semantic types, basic types might include individuals (e) and truth-values (t), while functional types include terms of type et (functions from the set of individuals to truth-values), type $(et)t$ (functions from functions of type et to truth values), etc:

(21) a. λx.[x is a cat]

b. λP_{et}.[P(Sam)]

The corresponding basic syntactic types are typically n or np for nominal expressions and s for verbs or clausal predicates. Syntactic functor types specify the linear order of arguments using the "slash" symbols "\" "/" and "|", where the forward slash indicates a following argument, a backwards slash indicates a preceding argument, and a vertical slash indicates either direction. For example, the components of the sentences *waliːd bɪḥɪbb ṣaːḥɪr* "Waleed loves Saher" are the following (using for now a very simple predicate logic representation):[6]

(22) a. **waliːd** $\vdash$ np$_{3ms}$: Waleed$_j$

[6]For illustrative purposes, I assign *bɪḥɪbb* "(he) loves" a category corresponding to English word order. I return to the subject of Arabic word order in Ch. 3.

b. **ṣaːḥɪr** $\vdash \mathsf{np}_{3fs} : \mathsf{Saher}_k$

c. **bɪḥɪbb** $\vdash (\mathsf{s}\backslash\mathsf{np}_{3ms})/\mathsf{np} : \lambda y.\lambda x.[\ x\ \mathsf{loves}_e\ y\ ]$

The category type for the verb is a two-place function that combines first with a following argument and then with a preceding argument (as indicated by the direction of the slashes). The preceding argument (which corresponds to the subject or agent in the meaning representation) is further constrained as having to be morphologically specified as 3rd-person-masculine-singular.

The idea is that syntactic categories correspond directly to semantic types. If the semantic type is a Curried two-place function from pairs of individuals to truth-values (type eet), then its syntactic type will be a curried two-place function from pairs of noun phrases (category np) to clauses (category s). Verbs in different languages will take their arguments in different orders, even if their meanings correspond.

For example, the English verb *eat* combines with its subject and object arguments in subject-verb-object (SVO) word-order (23a), while its Levantine Arabic equivalent *ʔɛkal-yoːkɪl* "eat" often takes verb-subject-object (VSO) word order (23b), and Japanese *tabe-* "eat" takes subject-object-verb (SOV) word-order (23c):

(23) a. **eat** $\vdash (\mathsf{s}\backslash\mathsf{np}_{\mathsf{subj}})/\mathsf{np}_{\mathsf{obj}} : \lambda y.\lambda x.eat'yx$ (*English*)

b. **ʔɛkal** $\vdash (\mathsf{s}/\mathsf{np}_{\mathsf{obj}})/\mathsf{np}_{\mathsf{subj}} : \lambda x.\lambda y.eat'yx$ (*Levantine Arabic*)

c. **tabe-** $\vdash (\mathsf{s}\backslash\mathsf{np}_{\mathsf{obj}})\backslash\mathsf{np}_{\mathsf{subj}} : \lambda y.\lambda x.eat'yx$ (*Japanese*)

Although the three languages vary in terms of the order in which verbs combine with their arguments, they correspond to the analogous semantic functions.

Basic categories can be restricted in terms of various morphosyntactic features. For example, a nominal category can be restricted in terms of agreement features: $\mathsf{np}_{\mathsf{3ms}}$ for a 3rd-person-masculine singular, while a clausal category can be restricted in terms of tense, aspect, or mood features: $\mathsf{s}_{\mathsf{tense:pres,mood:indic}}$. In what follows, feature restrictions of this type are used to express agreement between subjects and verbs as well as concord between

nouns and adjectives and between n-words and their licensors. Furthermore, categories with complex features are sometimes abbreviated as follows:

(24) a. $\mathsf{s}_{\mathsf{mood:indic}} = \mathsf{s}_{\mathsf{t}}$

b. $\mathsf{s}_{\mathsf{mood:subj}} = \mathsf{s}_{\mathsf{v}}$

2.2.1 Combinatory Rules

Syntactic derivations consist of pairs of expressions being combined by a small set of rules: *Function Application*, *Function Composition*, *Substitution*, and (in some versions of CCG) *Type Raising*. Each of these is defined over semantic types. Each corresponds to two or more directional rules defined over syntactic types in order to account for different argument directions.

The rules are defined as follows:

(25) *Function Application* (A)

a. *Forward Application* (>A or just >):

$\mathsf{x/y} : \lambda x.[P(x)] \qquad \mathsf{y} : y \qquad \Rightarrow \qquad \mathsf{x} : P(y)$

b. *Backward Application* (<A or just <):

$\mathsf{y} : y \qquad \mathsf{x\backslash y} : \lambda x.[P(x)] \qquad \Rightarrow \qquad \mathsf{x} : P(y)$

(26) *Function Composition* (B)[7]

a. *Forward (Harmonic) Composition* (>B):

$\mathsf{x/y} : \lambda x.[P(x)] \qquad \mathsf{y/z} : \lambda y.[Q(y)] \qquad \Rightarrow \qquad \mathsf{x/z} : \lambda y.[P(Q(y))]$

b. *Forward Crossed Composition* (>$\mathsf{B}_\times$):

$\mathsf{x/y} : \lambda x.[P(x)] \qquad \mathsf{y\backslash z} : \lambda y.[Q(y)] \qquad \Rightarrow \qquad \mathsf{x\backslash z} : \lambda y.[P(Q(y))]$

c. *Backward (Harmonic) Composition* (<B):

$\mathsf{y\backslash z} : \lambda y.[Q(y)] \qquad \mathsf{x\backslash y} : \lambda x.[P(x)] \qquad \Rightarrow \qquad \mathsf{x\backslash z} : \lambda y.[P(Q(y))]$

d. *Backward Crossed Composition* (<$\mathsf{B}_\times$):

$\mathsf{y/z} : \lambda y.[Q(y)] \qquad \mathsf{x\backslash y} : \lambda x.[P(x)] \qquad \Rightarrow \qquad \mathsf{x/z} : \lambda y.[P(Q(y))]$

[7] By long-standing convention, the abbreviation for Function Composition is B.

(27) *Substitution* (S)

a. *Forward Harmonic Substitution* (>S):

$(\mathsf{x}/\mathsf{y})/\mathsf{z} : \lambda z.\lambda y.P(y)(z) \qquad \mathsf{y}/\mathsf{z} : \lambda z.Q(z) \qquad \Rightarrow \qquad \mathsf{x}/\mathsf{z} : \lambda z.Pz(Qz)$

b. *Backward Harmonic Substitution* (<S):

$\mathsf{y}\backslash\mathsf{z} : \lambda z.Q(z) \qquad (\mathsf{x}\backslash\mathsf{y})\backslash\mathsf{z} : \lambda z.\lambda y.P(y)(z) \qquad \Rightarrow \qquad \mathsf{x}/\mathsf{z} : \lambda z.Pz(Qz)$

c. *Forward Crossed Substitution* (>S):

$(\mathsf{x}/\mathsf{y})/\mathsf{z} : \lambda z.\lambda y.P(y)(z) \qquad \mathsf{x}\backslash\mathsf{z} : \lambda z.Q(z) \qquad \Rightarrow \qquad \mathsf{x}\backslash\mathsf{z} : \lambda z.Pz(Qz)$

d. *Backward Crossed Substitution* (<S):

$\mathsf{y}/\mathsf{z} : \lambda z.Q(z) \qquad (\mathsf{x}\backslash\mathsf{y})\backslash\mathsf{z} : \lambda z.\lambda y.P(y)(z) \qquad \Rightarrow \qquad \mathsf{x}/\mathsf{z} : \lambda z.Pz(Qz)$

(28) *Type Raising* (T) (for f of type σ, P of type $\sigma\tau$, and t of some syntactic category)

a. *Forward Type Raising* (>T):

$\mathsf{x} : f_\sigma \qquad \rightarrow \qquad \mathsf{t}/(\mathsf{t}\backslash\mathsf{x}) : \lambda P_{\sigma\tau}.[P(f)]$

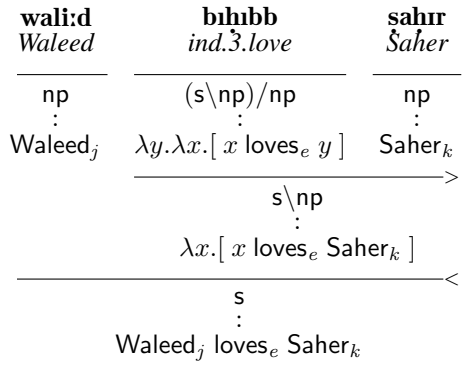
b. *Backwards Type Raising* (<T):

$\mathsf{x} : f_\sigma \qquad \rightarrow \qquad \mathsf{t}\backslash(\mathsf{t}/\mathsf{x}) : \lambda P_{\sigma\tau}.[P(f)]$

In applications of Function Composition (B) and Substitution (S), the category which does the composing (i.e., the category that determines the result category of the output) is referred to as the *primary functor*, while the category that is composed into is the *secondary functor*. For example, in (26a) the primary functor is x/y and the secondary functor is y/z. Function Composition and Substitution have, in addition, higher order variants which allow composition into functions of an arity greater than 2. For example, 2nd-order Forward Composition (>B^2) allows x/y to compose into $(\mathsf{y}/\mathsf{z})/\mathsf{w}$, 3rd-order composition (>B^3) allows x/y to compose into $((\mathsf{y}/\mathsf{z})/\mathsf{w}_1)/\mathsf{w}_2$, and so on.

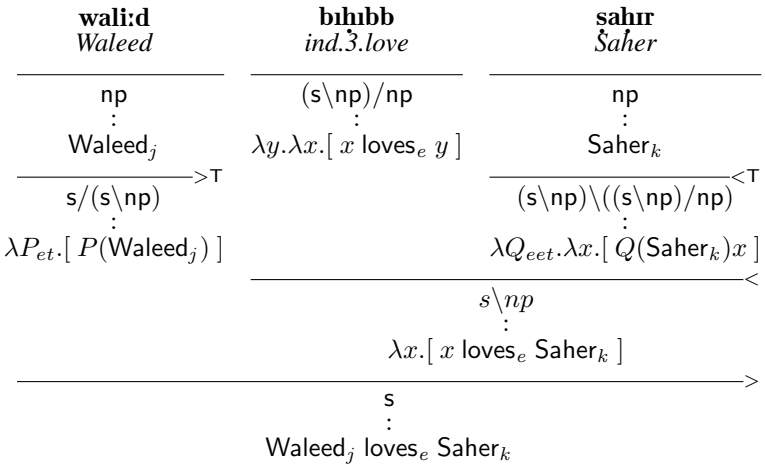
To illustrate how these rules are used, the following are all possible derivations for *waliːd bɪḥɪbb ṣaːḥɪr* (assuming for illustrative purposes that Levantine Arabic verbs look for a preceding subject). In (29), the argument noun phrases are treated as atomic types (np), and the verb combines with them by means of Function Application only:

(29)



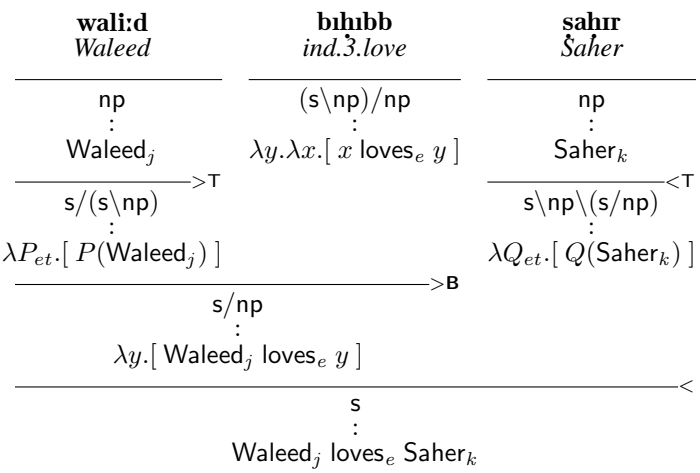
In (30), both arguments are type-raised and take the verb phrase as their arguments:

(30)



In (31), the type-raised subject combines with the verb by means of Function Composition, producing a constituent of type s/np that the type-raised object takes as its argument:

(31)



Additional derivations are also possible, using, for example, a type-raised category $(\mathsf{s/np})/((\mathsf{s\backslash np})/\mathsf{np})$ for the subject, or derivations in which only one argument is type-raised rather than both. However, in standard formulations of CCG, Type Raising is not used in syntactic derivations and instead is used as a lexical rule, an assumption I adopt here.

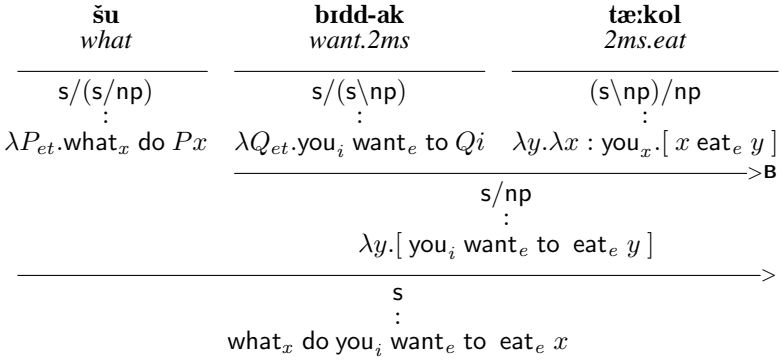
2.2.1.1 Type-Raising, Function Composition, and Extraction

Using Type-Raising and Function Composition allows for multiple derivations for a given sentence, and therefore predicts a more flexible notion of syntactic constituency than do phrase-structural approaches to syntactic structure such as context-free grammars or tree-adjoining grammars (c.f. Steedman, 1996, 2000b,a). To put it slightly differently, CCG predicts syntactic derivation to be *associative*. This flexibility has been exploited to model different patterns of intonational phrasing for a given sentence (c.f. Steedman, 2000b,a).

Function Composition is how extraction and other long-distance or discontinuous dependencies such as scrambling or argument extraposition are modeled in CCG. The idea is that an extracted element (such as a question word or topicalized noun phrase) combines with a complex function that is derived by means of Function Composition. For example, in the derivation for the sentence sentence *šu bıdd-ak ta:kol lalɣadda?* "What do you want to eat for lunch," the constituent *bıdd-ak ta:kol lalɣadda* "you want to eat for lunch" is derived by forward Function Composition (>B), which is then applied to the question word as an

argument:

(32)

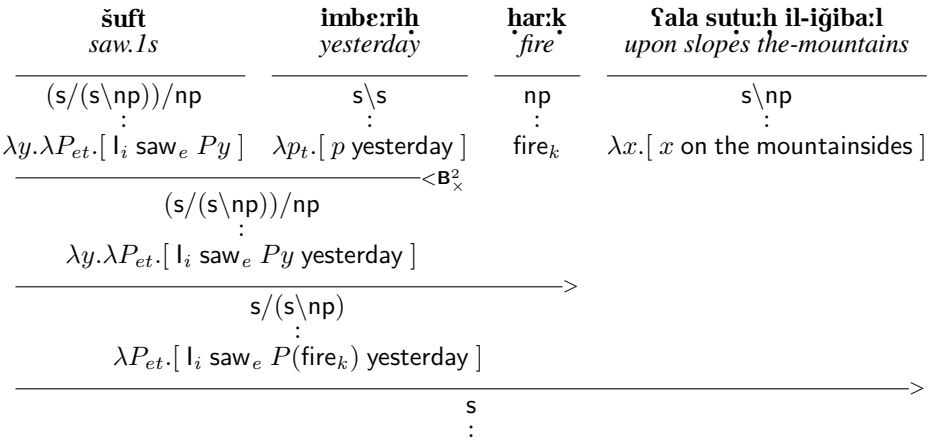


The crossed composition rules (>B$_\times$ and <B$_\times$) are used to model *non-peripheral extraction* and word order permutations in which the argument of a functor is displaced by another category. For example, in (33) the verb *šʊft* "I saw" takes *ḥariːk* "(a) fire" as its object, but is separated from it by the adverb *ɪmbɛːrɪḥ* "yesterday":

(33) šʊft **ɪmbɛːrɪḥ** ḥariːk ʕala suṭuːḥ ɪl-ɪǧbæːl
saw.1s yesterday fire on slopes the-mountains
"Yesterday I saw a fire on the mountainsides."

This word order permutation is analyzed by combining *ɪmbɛːrɪḥ* with the verb by means of the Backwards Crossed-Composition rule:

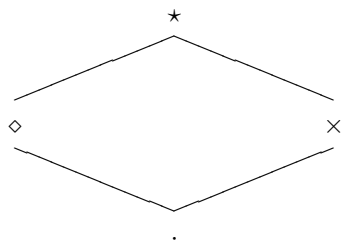
(34)



Crossed composition is necessary for deriving examples like this with permuted word order, but it also over-predicts word order possibilities in languages like English (c.f. Steedman, 2000b; Baldridge, 2002). This has led Baldridge (2002) to augment the CCG formalism in such a way that the application of crossed composition can be controlled within a grammar. Baldridge does this by specifying slashes in syntactic types with *slash modalities* referring to the different kinds of rules. For example, the $\star$-modality is compatible only with Function Application, meaning that a functor category specified with a "$\star$" on its slash cannot be part of the input to Function Composition. The $\diamond$-modality is only compatible with "normal" (or *harmonic*) composition, while the "$\times$" modality is only compatible with crossed composition.

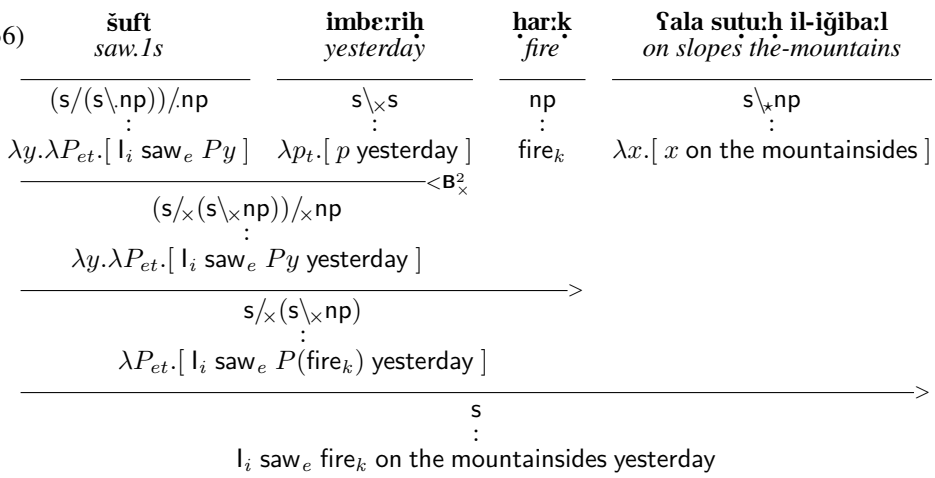
Baldridge's modalities are organized in a hierarchy in terms of restrictiveness: the $\star$-modality is at the top and is the most restrictive, while the $\cdot$-modality is at the bottom and is compatible with all the combinatory rules:

(35)



The derivation above for (33) is then revised with appropriate slash-modalities:

(36)



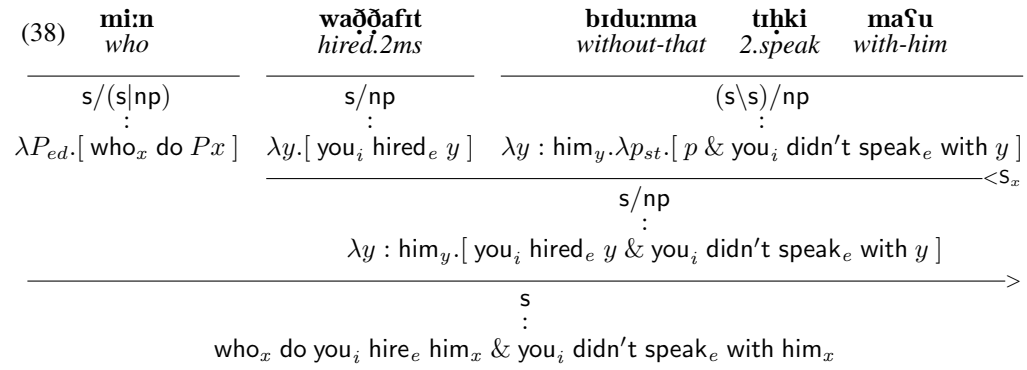
The category for *ɪmbɛːrɪḥ* "yesterday" is specified with a $\times$-modality on its argument slash in order to allow it to combine with a verb by means of a crossed composition rule. The verb argument slashes are decorated with the $\cdot$-modality, which allows the application of any rule. The proposition, however, is decorated with the $\star$-modality which forbids any form of function composition.

The Substitution rule (S) is generally used to model "parasitic gap" constructions (c.f. Steedman, 1987). These are constructions like the one found in the following sentence, in which an extracted expression (here the question-word *miːn* "who") simultaneously binds two open positions, one in an argument position (here the object of *waḍḍafɪt* "you hired" and one in position inside an adverbial adjunct (here *bɪduːnma tɪḥki maʕu* "without speaking to him"). Although native speakers accept extraction (as in 37a), they have a preference for a resumptive pronoun in both bound positions (37b):

(37) a. miːn$_i$ waḍḍaft $\_\__i$ [bɪduːnma tɪḥki maʕ**u**$_i$]?
who hired.2ms without-that 2.speak with-him x
"Who did you hire without speaking to him?"

b. miːn$_i$ waḍḍaft**u**$_i$ [bɪduːnma tɪḥki maʕ**u**$_i$]?
who hired.2ms-him without-that 2.speak with-him
"Who did you hire [him] without speaking to him?"

Analysis of either (37a) or (37b) requires a rule that allows for the resumptive pronoun to be interpreted as an open position, which is to say, like a gap:



Note that in the example, the position inside the adjunct clause is actually filled by a resumptive pronoun:

(39) i. šmen ktab ntaqad [qablma yiqra:]?
which book criticized before-that 3.read-him
"Which book did he criticize before reading?"

ii. ʔanhu lʕarabiyya ʔɪlli ʕali štara:ḥhæ mɪn ɣe:rma yʕraf ɪrragɪl
which the- car.fs rel Ali bought-her from other-than 3.know
ɪlli baʕhalu:.
the-man rel sold-her-to-him
"Which car did Ali buy without knowing the man who sold it to him?"

In this respect, Levantine Arabic is unlike English, in that a position bound by one of the combinatorial rules can be occupied by a pronominal expression, rather than being unfilled.[8]

In fact, the use of resumptive pronouns is pervasive in all varieties of Arabic, and requires an analysis. I turn to this in the next section.

[8]Similar data have been reported for Moroccan Arabic by Ouhalla (2001), for Egyptian Arabic by Wahba (1984), and for Jeddah Arabic (Saudi Arabia) by Wahba (1995) (example not given).

2.3 Pronominal Resumption and Pro-Drop

I assume two additional rules for modeling pronominal resumption and "pro-drop" (i.e., omission of subject arguments in the presence of verbal agreement marking) which are important parts of Levantine Arabic grammar. These are not intended as thorough-going analyses of these phenomena, which, to the best of my knowledge, have not been analyzed in CCG before. Rather, they should be understood as placeholders for a more adaquate analysis.

2.3.1 Pro-Drop

The pronominal interpretation of verbal agreement marking ("pro-drop") is treated by the following rule:

(40) *Pro-Drop*

$A \vdash \mathsf{s|np} : \lambda x : cond'x.[\ \phi x\ ] \quad \Rightarrow_{pro} \quad A \vdash \mathsf{s} : [\ x \mid \phi x\ ,\ pro'x(cond')\ ]$

(where ϕ is a set of conditions closed under conjunction)

This assumes that verbal agreement marking is interpreted as a restriction on the domain of the subject argument in terms of the conditions expressed by the agreement features. For example, the verb *nɪmɪt* "I slept" has as its lexical type assignment a function from the (singleton) set of referents specified by the context as "speaker" to an event of sleeping (41a; shown in prose format in 42b):

(41) a. **nɪmt** $\vdash \mathsf{s/np} : \lambda x : speaker'x.[e|\ past'sleep'x\ ]$

b. **nɪmt** $\vdash \mathsf{s/np} : \lambda x : \mathsf{I}_x.[\ x\ \mathsf{slept}_e\ ]$

Application of the pro-drop rule is shown in (42a; prose format in 42b):

(42) a.

$$\dfrac{\dfrac{\textbf{nmt}}{\textit{slept.1s}}}{\dfrac{\mathsf{s/np}}{\lambda x : speaker'x.[\ e \mid past'sleep'x\ ]}\ pro}\ \dfrac{}{\mathsf{s}}\ [\ e \mid past'sleep'x\ ]$$

b.

$$\dfrac{\dfrac{\textbf{nmt}}{\textit{slept.1s}}}{\dfrac{\mathsf{s/np}}{\lambda x : \mathsf{I}_x.[\ x\ \mathsf{slept}_e]}\ pro}\ \dfrac{}{\mathsf{s}}\ \mathsf{I}_x\ \mathsf{slept}_e$$

The pronoun-projection rules above in (11) then feed the *pronoun-abstraction* (or pro-abstraction) rule for resumptive pronouns, which operates on the category of the verb or other word taking the pronoun as argument:

(43) *Pro-Abstraction*

$$A \vdash \mathsf{s\$} : [\ x \mid pro'x(cond')\ ,\ Qx\ ] \quad \Rightarrow_{\lambda - pro} \quad A \vdash \mathsf{s\$}|_{!}\mathsf{np} : \lambda x : cond'.Qx$$

(where P and Q are sets of conditions closed under conjunction)

The Pro-Abstraction rule takes a pronominal presupposition for a referent x with conditions $cond'$ and abstracts over it, creating a partial function from the set of entities satisfying $cond'$ and corresponding to an "inert" slash argument (c.f. Baldridge, 2002) in the syntactic category (inertness is represented as a "!" subscript on a slash; c.f. Hoyt and Baldridge 2008).[9]

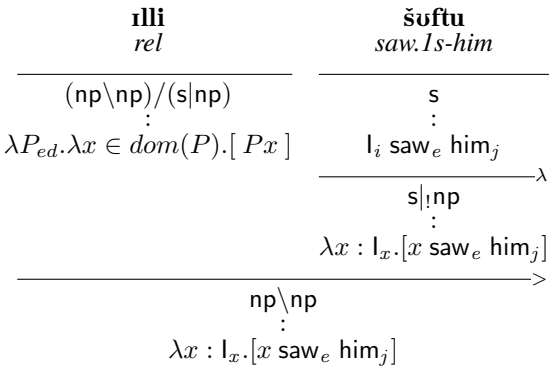
The idea behind an inert slash is that is cannot combine with an argument by means of function application. Instead, an inert function can only be taken as an argument to another category. Crucially, I assume that the pro-drop rule above is only defined for syntactic

[9]Inert slashes are used in order to prevent the functions generated by the rule from combining directly with arguments by means of function application. Intead, gunctions generated by the rule can only be used as arguments of other categories.

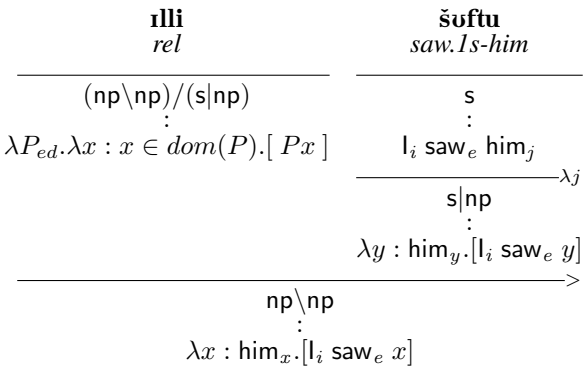
categories with active slash arguments. This prevents the pro-drop and pro-abstraction rules from looping over one another.

The Pro-abstraction rule can also apply to verbal agreement marking, allowing relativization over a pronominal subject. For example, given the verb *šʊftu* "I saw him," either the subject agreement marking (44a) or the object clitic-pronoun can be relativized over (44b):

(44) a.



b.



An argument in favor of treating finite verbs as partial functions over subject referents is the fact that relative clauses can be formed over subject arguments, with the head of the relative clause agreeing with the position abstracted over. For example, (45a) shows a relative clause that abstracts over a 1st-person subject argument being applied as a predicate to a 1st-person pronoun. Similarly, (45b) shows relativization over a 2nd-person subject position, with the relative clause applied to a 2nd-person pronoun:

(45) a. **ʔana** [ʔɪlli **ḥakeːt** maʕak ɪmbɛrɪḥ], bɪtðɛkkɪrni?
I rel spoke.1s with-you.ms yesterday
"I'm the one who spoke with you yesterday, do you remember me?"

b. saddɪgni maːfi ʔɪla **ʔɪnta** [ʔɪlli **gʊlt** ʕanni hælkalæːm].
believe-me not-exist except you.ms rel said.2ms on-me this-the-talk
"Believe me, there's no one but you who said this talk about me."

This shows that agreement marking expressing participant person (i.e., 1st- or 2nd-person) can be relativized over.

Nonetheless, relativization can also abstract over 3rd-person positions of the appropriate gender. For example, (46a) shows a relative clause that abstracts over a 3rd-person feminine-singular subject applied as predicate to a 1st-person pronoun, with the implication that the speaker is female. Likewise, (46b) shows a relative clause abstracting over a 3rd-person masculine-singular subject being applied to a 2nd-person pronoun, with the implication that the addressee is male:

(46) a. ʔaːlatlu **ʔana** [ʔɪlli **ḥakat** maʕak ɪmbɛrɪḥ]
said.3fs-to-him I rel spoke.3fs with-you.ms yesterday
"She said to him 'I'm the one who spoke with you yesterday.'"

b. bɛss **ʔɪnta** [ʔɪlli **gaːl** ʕanni hælkalæːm].
but you.ms rel said about-me this-the-talk
"But it's you who said this talk about me."

The generalization is therefore that a relative clause modifying a noun must agree with that noun in gender and number, and either abstract over a 3rd-person pronoun, or agree with the modified noun in person-marking.

This suggests the following:

(47) i. 3rd-person marking indicates an absence of participant person (1st- or 2nd-person), rather than an opposition to it.

ii. Relative clauses are partial functions over the domain of individuals, restricted by gender predicates (or in some cases, animacy), and by sets containing contextually-specified discourse participants.

iii. Hence, subject agreement markers are interpreted as pronouns introducing variables that can be abstracted over.

Another reason to treat subject arguments as open positions is that they can be accessed syntactically. Examples of this include modification by subject-oriented manner adverbs (48a) or depictive modifiers (48b), combination with subject noun phrases (48c), and relative clause formation over subjects (48d).[10]

(48) a. bɪmši baṭiːʔ.
ind.3.walk slowly
"He walks slowly."

b. gareːt ɪlǧariːda gæːʕɪd bɪlmaṭbaχ.
read.1s the-newspaper sitting in-the-kitchen
"I read the newspaper sitting in the kitchen."

c. ʔabuːy bɪmši baṭiːʔ.
father-my ind.3.walk slowly
"My father walks slowly."

d. ʔana ʔɪlli ḥakeːt maʕak ɪmbæːrɪḥ.
I rel spoke.1s with-you.ms yesterday
"I'm who spoke with you yesterday."

I take this to indicate that verbs marked with agreement can have open subjects in at least some contexts.

[10] I assume here that manner adverbials and depictive modifiers are functions that take arguments of type est and return the same, predicating additional information of each variable. For example, *baṭiːʔ* "slowly" might be analyzed as a partial function from the actor relation to the actor relation:

i. **baṭiːʔ** "slowly" $\vdash (\mathsf{s}|\mathsf{np})\backslash(\mathsf{s}|\mathsf{np}) : \lambda P_{est} : [P \in \lambda x.\lambda e.[act'ex]].\lambda x.\lambda e.[Pxe \wedge slow'x]$

To summarize, I have proposed to analyze resumptive pronoun dependencies in Levantine Arabic by allowing a lambda-abstraction rule (in the form of a unary type-changing rule) to operate in the syntax. This rule interacts with rules of inference operating on logical forms (discourse representation structures, in this case) allowing pronominal meanings to "percolate" to a top-level scope domain where they can be accessed for abstraction. The abstraction rule can be fed by the pro-drop rule, allowing for resumption over subject argreement-marking morphology. These rules only feed in one direction, which prevents vacuous rule cycling.[11]

2.3.2 Summary of Resumption

To summarize this subsection, I provided an analysis of resumptive pronoun dependencies in Levantine Arabic, using a combination of unary type-shifting rules modeling lambda-abstraction along with rules of inference operating over logical forms feeding those type-changing rules. This implies a model of syntactic derivation according to which inferences in logical form can interact with the syntax. To the extent that bound pronoun anaphora (of which pronominal resumption is a specie) involves manipulation of logical forms, mixing syntactic derivation with logical inference is well-motivated.

2.4 Split Scope Readings and Raised Arguments

Much of the data to be discussed show what has been called the *split-scope* problem. This is the observation that n-word noun phrases and noun phrases headed by other determiners, such as *few*, *little* or *no*, have interpretations in which the common noun component has scope embedded below — and hence *split* from — the scope at which the negation is interpreted (c.f. Bech, 1957; Klima, 1964; Jacobs, 1980; Geurts, 1996; McNally, 1998; de Swart, 2000; Penka and Stechow, 2001; Landman, 2004; Penka, 2007).

[11] An alternative analysis could be formulated in the version of CCG proposed by Jacobson (1992, 1993, 1994, 1996, 1999, 2000, 2002), which makes extensive use of unary type-shifting rules to derive bound readings of pronouns.

Split readings seem to have been studied more extensively in the transformational literature than elsewhere, and more often with downward-entailing determiners such as *no*, *few*, *little*, *more than* or *fewer than*, and other comparative constructions. This is illustrated in the following examples, in which a noun phrase (shown in bold) has a split-scope interpretation as its most salient meaning. The split-scope meanings are highlighted in the paraphrases given in parentheses, with the two elements of the split reading again given in bold:

(49) *English*

a. Again some children will **need no help**, others might need a lot.
(i.e., "Some children will **not** [need **any** help].)"

b. If present trends continue, **our grandchildren may be able to see few if any stars at all**.
(i.e., "Our grandchildren will **not** be able [to see **many stars** at all].")

c. As the weather in the Whitsundays is mostly warm, **you'll need to bring little in the way of clothes**.
(i.e., "You **won't** need [to bring **much** in the way of clothes].")

d. All information for your resume is developed through an extensive telephone consultation, which you may schedule for an evening or a weekend afternoon as well as for a weekday. **You need to write nothing yourself**.
(i.e., "You do **not** [need to write **anything** yourself].")

Likewise, split-scope readings have been noticed with German *kein*-words and the cognate *geen*-words in Dutch:[12]

(50) *German*

a. Du mußt **keine Krawatte** anziehen.
you must no tie on-tug
"There isn't a tie that you have to wear." (Wide Scope)
"You don't have to wear any tie." (Split Scope)

[12]Note that Standard German and Standard Dutch are not negative concord languages.

b. Es muß **kein Arzt** anwesend sein.
it must no doctor present be
"There isn't a doctor who must be present." (Wide Scope)
"There doesn't have to be any doctor present." (Split Scope)

c. Peter sucht **kein Einhorn**.
Peter seeks no unicorn
"There is no unicorn such that Peter is looking for it." (Wide Scope)
"Peter is not looking for a unicorn." (Split Scope)

d. Jim wurde **kein Rockstar**.
Jim became no rockstar
"There is no rock star that Jim became." (Wide Scope)
"Jim did not become a rock star." (Split Scope)

(51) Dutch

a. Ze mogen **geen verpleegkundige** ontslaan.
they must no nurse fire
"There isn't a nurse that they must fire." (Wide Scope)
"They don't have to fire any nurse." (Split-Scope)

b. Anne will **geen noor** trouwen.
Anne wants no Norwegian marry
"There isn't a Norwegian that Anne wants to marry." (Wide-Scope)
"Anne wants not to marry any Norwegian." (Split Scope)

While each of these examples has at least two interpretations, each has one interpretation in which the negation is understood with scope *over* the matrix verb, while the existential force of the NP is interpreted with scope *under* the matrix verb.

The split scope effect is particularly clear in the following examples using the German idioms *jemandem einen Bären zu aufbinden* "to fool someone, to pull someone's leg, to have someone on" (lit. "to tie a bear up for someone"), illustrated in (52) or *eine Schraube locker haben* "to have a screw loose":

(52) a. Ich glaube das man uns da **einen richtigen Bären** aufbinden
I.nom believe.1s that one us.dat there a.ms.acc right.acc bear.acc up-bind
will.
wants.3s
"I believe that someone there wants to pull a proper trick on us."

b. Mein Bruder hat **eine Schraube** locker.
my brother has a screw loose
"My brother has a screw loose."
(i.e., "My brother is crazy.")

The idiom can be used with the negative determiner *kein* "no," in which case *kein* expresses sentential negation, and *bären* "bear" or *schraube* "screw" have no interpretation at all:

(53) a. Mir kannst du **keinen Bären** aufbinden.
me.dat can.2s you.s.nom no.ms.acc bear-acc up-bind
"You can't fool me."
(lit. "You can't tie up any bear for me.")

b. dem Peter ist **keine Schrauber** locker.
the.dat.msg Peter is no screw loose
"Peter isn't crazy."
(lit. "Peter doesn't have a screw loose.")

The generalization is that the negative operator associated with the n-words takes sentential scope, while the common-noun interpretation can scope at any level below the negation, or not be interpreted at all.[13]

[13] Split scope readings are actually a more general phenomenon, and have been noted with cardinal quantifiers (Krifka, 1990; Doetjes and Honcoop, 1997), *how-many* questions, and comparative quantifiers (Heim, 2000; Hackl, 2001). For example, (1) has a reading according to which there were 1000 instances of a vehicle passing through the given tollbooth, but not necessarily 1000 distinct vehicles (i.e., some vehicles may have passed through more than once). Likewise, (2) has an interpretation according to which the question is about Matt's intentions, rather than about the quantity of some set of books that Matt has chosen to read:

1. 1000 vehicles passed through the tollbooth today.
1000 vehicles are such they passed through the tollbooth today. (Wide Scope)
There were 1000 times today when a vehicle passed through the tollbooth. (Split-Scope)

As will be discussed at length in what follows, split scope readings are available for some Levantine Arabic negative concord sentences, such as the following:

(54) a. ʔana mıš raḥ aʕrıf ɛktıb **wala kılmi** lyoːm.
I not fut 1s.know 1s.write not.even word the-day
"I'm not going to be able to write a single word today."

b. **wala kılmi** ʕırifıt ɛktıb**hæ** lyoːm.
not.even word.fs knew.1s 1s.write-her the-day
"Not one word was I able to write today."

In each example, a creation verb *kɛtɛb-yıktıb* "write" occurs as the complement of a modal verb *ʕırıf-yıʕrıf* "to know, be able to." Creation verbs have the property that their object arguments are referentially opaque, meaning that the existence of a referent corresponding to the object is asserted only relative to some possible world or future time, rather than at the time and world at which the meaning of the sentence is evaluated (c.f. Dowty, 1979; Zimmerman, 1993; Stechow, 2001; McCready, 2006; Moltmann, 2008). The common noun *kılmi* "word" is therefore interpreted in a doubly-opaque environment: at a future time relative to a possible world. Nonetheless, any negative meaning contributed by the *wala kılmi* "not one word" has only sentential scope.[14]

Therefore, an analysis in CCG of Levantine Arabic negative concord sentences, and indeed of the semantics of downward-entailing determiners in general, calls for an analysis of split scope readings.

2.4.1 Theoretical Options for Analyzing Split Scope

Analyses of split-scope readings typically involve a decompositional analysis of the meaning of the determiners in question. The meaning is typically decomposed into a negation op-

2. How many books does Matt want to read?
What is the number N such that there are N books that Matt wants to read? (Wide Scope)
What is the number N such that Matt wants to read N books? (Split Scope)

[14]The availability of split-scope readings has been noted in Romanian negative concord sentences by Iordachioaia (2009).

erator scoping over a quantifier-meaning (Jacobs, 1980; Penka and Stechow, 2001; Penka, 2007; Abels and Martí, 2010).

For example, an influential proposal for treating split-scope readings of n-words is due to Jacobs (1980), who argues that n-words must be lexically decomposed so that the negative and existential operators can take different scopes relative to the matrix predicate. These types are like quantificational determiner types ($(et)(et)t$) except that they take a third argument T corresponding to the type of the formula that the negation has to take scope over. In the following example, T is type tt, the type of a modal auxiliary:

(55) **kein** "no" $\vdash$ $(((\mathsf{s}\backslash\mathsf{np})\backslash(\mathsf{s}\backslash\mathsf{s}))/(\mathsf{s}\backslash(\mathsf{s}/\mathsf{np})))/\mathsf{np} : \lambda Q_{et}.\lambda R_{eet}.\lambda T_{tt}.\lambda x.\neg T(\exists y[Qy \wedge Ryx])$

du	**mußt**	**keine**	**Krawatte**	**anziehen**
$\mathsf{s}/(\mathsf{s}\backslash\mathsf{np})$	s/s	$(((\mathsf{s}\backslash\mathsf{np})\backslash(\mathsf{s}\backslash\mathsf{s}))/(\mathsf{s}\backslash(\mathsf{s}\backslash\mathsf{np})))/\mathsf{np}$	np	$(\mathsf{s}\backslash\mathsf{np})\backslash\mathsf{np}$
$\lambda P_{et}.P(you')$	$\lambda p.\Box p$	$\lambda Q_{et}.\lambda R_{eet}.\lambda T_{tt}.\lambda x.\neg T(\exists y[Qy \wedge Ryx])$	$\lambda z.tie'z$	$\lambda y.\lambda x.wear'yx$
		$((\mathsf{s}\backslash\mathsf{np})\backslash(\mathsf{s}\backslash\mathsf{s}))/(\mathsf{s}\backslash(\mathsf{s}\backslash\mathsf{np}))$: $\lambda R_{eet}.\lambda T_{tt}.\lambda x.\neg T(\exists y[tie'y \wedge Ryx])$		
		$(\mathsf{s}\backslash\mathsf{np})\backslash(\mathsf{s}\backslash\mathsf{s})$: $\lambda T_{tt}.\lambda x.\neg T(\exists y[tie'y \wedge wear'yx])$		
		$\mathsf{s}\backslash\mathsf{np}$: $\lambda x.\neg\Box(\exists y[tie'y \wedge wear'yx])$		
s : $\neg\Box(\exists y[tie'y \wedge wear'y(you')])$				

The problem with this approach is that it requires a proliferation of types to account for various kinds of examples. For example, the following German sentence is claimed to have a reading according to which it is not the case that all doctors have cars, and requires a different type for *kein*, one which selects a generalized quantifier for its last argument. In this case, the T argument has to be of type $(et)t$, the type of a generalized quantifier:

(56) a. Alle Ärzte haben kein Auto.
all doctors have no car
"All doctors are such that they do not have cars."
"It is not the case that all doctors are such that they have cars."

b. **kein** $\vdash ((\mathsf{s}\backslash(\mathsf{s}\backslash(\mathsf{s}/\mathsf{np})))\backslash((\mathsf{s}\backslash\mathsf{np})/\mathsf{np}))/\mathsf{np} : \lambda Q_{et}.\lambda R_{eet}.\lambda T_{(et)t}.\neg T(\lambda x \exists y[Qy \wedge Ryx])$

alle Ärzte	**haben**	**kein**	**Auto**
$\mathsf{s}/(\mathsf{s}\backslash\mathsf{np})$	$(\mathsf{s}\backslash\mathsf{np})/\mathsf{np}$	$((\mathsf{s}\backslash(\mathsf{s}\backslash(\mathsf{s}/\mathsf{np})))\backslash((\mathsf{s}\backslash\mathsf{np})/\mathsf{np}))/\mathsf{np}$	np
$\lambda Q_{et}.\forall x[doctor'x \rightarrow Qx]$	$\lambda y.\lambda x.have'yx$	$\lambda Q_{et}.\lambda R_{eet}.\lambda T_{(et)t}.\neg T(\exists y[Qy \wedge Ryx])$	$\lambda z.car'z$
		$(\mathsf{s}\backslash(\mathsf{s}\backslash(\mathsf{s}/\mathsf{np})))\backslash((\mathsf{s}\backslash\mathsf{np})/\mathsf{np})$ (>)	
		$\lambda R_{eet}.\lambda T_{(et)t}.\neg T(\exists y[car'y \wedge Ryx])$	
	$\mathsf{s}\backslash(\mathsf{s}\backslash(\mathsf{s}/\mathsf{np}))$ (<)		
	$\lambda T_{(et)t}.\neg T(\exists y[car'y \wedge have'yx])$		
s (>)			
$\neg\forall x[doctor'x \rightarrow \exists y[car'y \wedge have'yx]]$			

For additional structures further types for *kein* would be required, missing a syntactic generalization: while the negation always scopes over the existential and always takes matrix scope, the scope of the existential can vary within the scope of the negation.

The approach I take to analyzing split-scope readings is to assume that verbs and other argument-taking categories can take *raised* argument types (for example, of type $\mathsf{s}\backslash(\mathsf{s}/\mathsf{np})$ or $\mathsf{s}/(\mathsf{s}\backslash\mathsf{np})$) in addition to taking atomic types np or pp. For example, the verb *ʔɛkal-yoːkɪl* "eat" can have (at least) the two following types, the first of which takes atomic-type arguments, and the second of which takes raised arguments:

(57) a. **ʔɛkalɪt** "I ate" $\vdash (\mathsf{s}\backslash\mathsf{np})/\mathsf{np} : \lambda y.\lambda x.[\ \mathsf{I}_x\ \mathsf{ate}_e\ y\ ]$

b. **ʔɛkalɪt** "I ate" $\vdash (\mathsf{s}\backslash(\mathsf{s}/(\mathsf{s}\backslash\mathsf{np})))/(\mathsf{s}\backslash(\mathsf{s}/\mathsf{np})) :$
$\lambda Q_{(et)t}.\lambda P_{(et)t}.[\ P(\lambda x.Q(\lambda y.\mathsf{I}_x\ \mathsf{ate}_e\ y))\ ]$

I assume that these alternate types are derived by lexical rule.

(58) $A \vdash \mathsf{s\$|np} : \lambda y.\lambda \ldots .[\ e \mid \ldots\ ,\ cond' y\ ,\ \ldots\ ]$

$\Rightarrow$

$A \vdash \mathsf{s\$|np^{\uparrow}} : \lambda R_{(e \ldots d) \ldots t}.\lambda \ldots .[\ e \mid \ldots\ ,\ R(\lambda y.cond' y)\ ,\ \ldots\ ]$

The higher-arguments types are used to capture the opaque object reading (c.f. Dowty, 1979; Zimmerman, 1993; Stechow, 2001), by passing the meaning of the argument to lower scope position within the meaning of the verb:

(59) a. **bɪdawwɪr** $\vdash (\mathsf{s|np})/(\mathsf{s}\backslash(\mathsf{s/np})) : \lambda R_{(ed)d}.\lambda x : him' x.x\ \mathsf{try}_e\ \mathsf{to}\ R(\lambda y.x\ \mathsf{find}_s\ y)$

b. **kɛtɛbɪt** $\vdash (\mathsf{s|np})/\mathsf{np}\ \lambda R_{(ed)d}.\lambda x : speaker' x.[x\ \mathsf{cause}_e\ R(\lambda y.\mathsf{of}\ \mathsf{text}_y\ \mathsf{to}\ \mathsf{exist}_s)]$

The rule in (58) amounts to a claim that this type can be generalized across verbs, allowing them to have an interpretation according to which the scope of the object argument can be restricted to whatever thematic role is associated with the position.

The categories for the raised types are notationally cumbersome, so for notational convenience, I write the higher arguments types as $\mathsf{np}^{\uparrow}$ (following standard usage in CCG):

(60) **ʔɛkalɪt** "I ate" $\vdash (\mathsf{s}\backslash(\mathsf{s/np^{\uparrow}})/\mathsf{np^{\uparrow}} : \lambda Q_{(et)t}.\lambda P_{(et)t}.[\ P(\lambda x.Q(\lambda y.\mathsf{I}_x\ \mathsf{ate}_e\ y))\ ]$

Of course, the meaning derived from the categories with raised arguments are equivalent to those derived from the categories with atomic arguments. However, the use of verbs with higher-type arguments is already motivated by the semantics of verbs with opaque object positions, such as verbs like *dawwar-ydawwɪr* "seek, search (for)" or, as mentioned above, creation verbs like *katab-yɪktɪb* "write" or *χarbaš-yχarbɪš* "doodle" (c.f. Dowty, 1979; Zimmerman, 1993; Stechow, 2001; McCready, 2006; Moltmann, 2008).[15] These are verbs according to the interpretations of which the existence of an object argument is only

[15] As has been noted elsewhere, verbs like *write* are difficult to analyze because they can be interpreted as being about the creation of artifacts (a physical text), or an "information object" (meaning the ideas or conceptual content), and it is possible for one to exist before the other (c.f. McCready, 2006). So, for example, I may have a poem composed in my head that I later commit to paper. In this case, the poem (qua information object) exists before I write it (qua artifact). The verb *doodle* is useful in this regard because it carries (at least) an implicature that the information object is not premeditated: to say that I am doodling at least implies that I am not planning my drawing. For this reason, the most prominent reading for *doodle* is the opaque-object interpretation.

entailed with respect to a future time or a possible world, and hence they have "opaque" object positions.

For example, *seek* (Arabic *dawwar-ydawwɪr*) entails belief on the part of the subject that an entity corresponding to the object may exist at a possible world that is compatible with his or her beliefs, but does not entail that such an object in fact exists in the real world. For example, the speaker of (61) asserts his or her belief that there is at least some possibility of work that he or she might be hired to do, but does not assert the actual existence of such:

(61) ʔana baʕdni badawwɪr ʕala **šʊɣɪl** umalageːtɪš.
I still.1s ind.1s.seek upon work and-not.found.1s-neg
"I'm still looking for work and I haven't found [any]."

Similarly, (62a-b) show creation verbs *katab-yɪktɪb* "write" and *χarbaš-yχarbɪš* "doodle, draw" which have temporally-opaque objects. Neither example shows the common noun interpreted with matrix scope:

(62) a. baʕrɪf**ɪš** ʔɛktɪb **wala** **kɪlmi** bɪduːnma ʔašrʊb kæːs gahwa.
ind.1s.know-neg 1s.write not.even word with-that 1s.drink cup coffee
"I can't write even one word without drinking a cup of coffee."

b. wʔaɣlab ɪlaḥyaːn tɪkuːn ɪṭṭaːwla bɪtilmaʕ mɪn naḍaːfɪthæ
and-most the-times 3fs.be the-table.fs ind.3fs.shine from cleanliness-her

w**ma**kʊnt aχalli ḥada [yχarbɪš **wala** **χarbuːša** ʕaleːhæ].
and-not-was.1s 1s.allow one 3.doodle not.even doodle upon-her

"Most of the time, the table would be sparkling clean, and I wouldn't let anyone doodle a single doodle on it."

Were that the case, (62a) would mean that no word exists before the speaker is able to cause it to exist without drinking a cup of coffee, which is nonsensical to the extent that we accept that nothing exists before it is brought into existence. Likewise, (62b) would mean that no

doodle existed before the speaker allowed anyone to bring it into existence on a clean desk, which is likewise nonsensical.

2.4.2 Towards a CCG Analysis of Fragments

The discussion of n-words in Levantine Arabic will include discussion of their use in sentence fragments, particularly in fragment answers. I am not aware of work in the CCG framework on the syntax and semantics of sentence fragments.[16]

Rather than undertaking the development of a theory of discourse interpretation for CCG, I assume a simple approach to elliptical interpretation that treats ellipsis backgrounds as having syntactic categories, or, to put it differently, a current question can be represented as a type associated with a null string. In particular, I assume that fragments are used in response to question meanings, which may have been expressed previously in the context, or which may be implicit.[17]

I assume a *Question-Under-Discussion* or *Current-Question* approach to discourse interpretation (c.f. Roberts, 1996; Büring, 1997; Schwarzschild, 1999; Kadmon, 2000; Beaver and Clark, 2008, a.o.), and that ellipsis resolution involves evaluating congruence with a current-question presupposition (c.f. Reich, 2004). For example, the dialog in (63) shows the noun *tʊffæːḥa* "an apple" being used in answer to the question *šu ʔɛkalt?* "What did you eat?" (or "What have you eaten?"):

(63) Q: šu ʔɛkalti?
what ate.2fs
"What have you eaten?"

A: tʊffæːḥa.
apple.fs

[16]There has been some discussion of verb-phrase ellipsis in different categorial grammar frameworks. Jacobson (1992) analyzes bound readings of verb-phrase ellipsis (such as antecedent-contained ellipsis) in a categorial framework, and Steedman (2000b) considers similar cases within CCG.

[17]This is possibly a variant of a proposal by Ginzburg (1999), who argues that questions-under-discussion specify syntactic information.

"[An] apple."

In the derivation, the question meaning is treated as having a syntactic category that the answer takes as its argument (the italics used for the string in the question category are intended to represent the null string, and are included for readability). I assume the category in (64a) for *tʊffæːḥa* "apple." A derivation for the fragment answer in (112) is given in (64b):

(64) a. **tʊffæːḥa** $\vdash \mathsf{s}\backslash(\mathsf{s}/\mathsf{np}^{\uparrow}) : \lambda Q_{((ed)d)d}.Q(\lambda P_{et}.\mathsf{one}_k\ \mathsf{apple}_k\ (Pk))$

b.

what ate.2fs	**tʊffæːḥa** *apple.fs*
$\mathsf{s}/\mathsf{np}^{\uparrow}$	$\mathsf{s}\backslash(\mathsf{s}/\mathsf{np}^{\uparrow})$
$\lambda R_{(ed)d}.[\ R(\lambda y.[\ \mathsf{I}_x\ \mathsf{ate}_e\ y\ ])\ ]$	$\lambda Q_{((ed)d)d}.Q(\lambda P_{et}.\mathsf{one}_k\ \mathsf{apple}_k\ (Pk))$
s	
$\mathsf{I}_x\ \mathsf{ate}_e\ \mathsf{one}_k\ \mathsf{apple}_k$	

Treating fragments this way does entail abandoning the assumption that all utterances with interrogative or propositional meaning are of syntactic category s. Should one wish to maintain that assumption, fragments would have to be treated as belonging to type s as well.

An alternative to treating fragments as function types would be to specify type-shifting rules that reduce a function type to a propositional type that has an unbound or anaphoric higher-order variable as part of its logical form.

(65) *Ellipsis*

$s|X : \lambda P.f(P) \quad \Rightarrow_E \quad \mathsf{s} : f(P)$

For example, *tʊffæːḥa* "an apple" in the example above would shift from its argument type to a sentence type:

(66) $\mathsf{s}\backslash(\mathsf{s}/\mathsf{np}) : \lambda P_{et}.\mathsf{one}_k\ \mathsf{apple}_k\ (Pk)$

$\Rightarrow_E$

$\mathsf{s} : \mathsf{one}_k\ \mathsf{apple}_k\ (P_{et})$

Question meanings would be represented as open propositions containing an unbound variable corresponding to the question word. Asserting a fragment as an answer to a question would then involve matching their respective types via Huet's algorithm (c.f. Huet, 1975; Dalrymple et al., 1991; Gardent et al., 1996; Gardent and Kohlhase, 1996a,b, 1997; Gardent, 1997, 2000), or through some other unification procedure.

For example, the meaning of the question *šu ʔɛkalti?* "What did you eat?" (67a) would match (via unification) the meaning of the fragment answer *tʊffæːḥa* "an apple" (67b) resulting in a fully saturated (and hence valid) propositional formula:

(67) a. *šu ʔɛkalti?* $\vdash \mathsf{s} : R_{(et)t}(\lambda y.[\ \mathsf{I}_x\ \mathsf{ate}_e\ y\ ])$

b. $R_{(et)t}(\lambda y.[\ \mathsf{I}_x\ \mathsf{ate}_e\ y\ ]) = \mathsf{one}_k\ \mathsf{apple}_k\ (P_{et}) = \mathsf{one}_k\ \mathsf{apple}_k\ (\lambda y.[\ \mathsf{I}_x\ \mathsf{ate}_e\ y\ ])$

$(R = \lambda P_{et}.[\ \mathsf{one}_k\ \mathsf{apple}_k\ (P)\ ],\ P = \lambda y.[\ \mathsf{I}_x\ \mathsf{ate}_e\ y\ ])$

Nonetheless, while this approach would make it possible to retain the assumption that all utterances are of type s, it fails to capture certain syntactic generalizations about the form of fragment answers. These are *connectivity effects* in ellipsis, which are syntactic constraints on the use of sentence fragments that require them to have the forms they would have if used in full sentences.[18]

A widely noted example of a connectivity effect is case-matching in languages with morphological case-marking, such as German. To illustrate, the German verb *helfen* "help" takes a direct object marked with the dative case. Correspondingly, a question word corresponding to the object of *helfen* must be marked in the dative case (68). A fragment answer to this question must likewise be marked in the dative case (68a), just as the same noun phrase would be in a full clause answer (68b):

(68) **Wem** hast du geholfen?
who.dat have.2s you.fam helped
"Who did you help?"

[18](C.f., Stainton 1995, 1997, 1998; Merchant 2000, 2004; Giannakidou 2000, and references therein).

a. **Einem alten Freund**.
a.dat.ms old friend
"An old friend."

b. Ich habe **einem alten Freund** geholfen.
I have.1s a.dat.ms old friend helped
"I helped an old friend."

c. * einen alten Freund.
a.acc.ms old friend

d. * ein alter Freund.
a.nom.ms old friend

Assuming that nominal case-marking is a morphosyntactic property of German NPs, these data show that the form of a fragment answer is subject to syntactic constraints (c.f. Ginzburg, 1999; Merchant, 2000, 2004).

Unlike German, Levantine Arabic does not have case marking on nouns. However, another kind of connectivity effect that it does have is related to preposition stranding. Levantine Arabic does not allow preposition stranding in question formation: Either the whole prepositional phrase must be moved with the question word (69a), or the question word must be fronted and bind a resumptive pronoun in the object position of the preposition (69b). The preposition cannot be just stranded as in English (69c):

(69) a. ʔɪnta **maʕ miːn** ḥakeːt?
you.ms with who spoke.2ms
"With whom did you speak?"

b. ʔɪnta **miːn** ḥakeːt maʕ**u**?
you.ms who spoke.2ms with-him
"Who did you speak with [him]?"

c. * ʔɪnta **miːn** (ɪlli) ḥakeːt **maʕ**?
you.ms who rel spoke.2ms with

Correspondingly, acceptable answers to these questions can be either a fragment prepositional phrase (70a) or a full clause (70b). A noun phrase fragment without the preposition is infelicitous or at least dispreferred (70c):

(70) a. maʕ ʔabuːy.
with father-my
"With my father."

b. ḥakeːt maʕ ʔabuːy.
spoke.2ms with father-my
"I spoke with my father."

c. # ʔabuːy.
father-my
"My father."

I follow Merchant (2004) in concluding that the form of a constituent used as a fragment answer is subject to the same syntactic constraints as the constituent would have in a full clause. This is captured by treating the current question as having a syntactic category.

2.5 Summary

In this chapter, I have presented the formalisms that I use in the following chapters for analyzing Levantine Arabic negative concord sentences. For meaning representation, I use λ-DRT augmented with several additional rules to account for focus semantics, pro-drop phenomena, and resumptive pronoun dependencies. For syntactic composition, I use Combinatory Categorial Grammar, again augmented with additional rules corresponding to the additional rules provided for the meaning representation. Lastly, I introduced an approach to analyzing the use of sentence fragments, which treats them as open categories, in search of question meanings as their arguments. I briefly compared this with an alternate approach that treats fragments as expressions of category `s`, and argued that treating answers as open types captures *connectivity effects* more expeditiously.

Chapter 3

A Sketch of Levantine Arabic

3.1 Introduction

In this chapter I present an overview of various aspects of Levantine Arabic grammar that are relevant for the discussion of negative concord. These include the structure and interpretation of noun phrases and of the principle sentence types found in Levantine, the use of resumptive pronouns (which was introduced in Ch. 2), and the grammar of negation marking.

Along with the description, I provide grammatical sketches in CCG, which are intended both to lay the groundwork for the analyses in subsequent chapters, and to provide bases for future work on Arabic in CCG, little of which has been done before.

3.2 Noun Phrases

Noun phrase structure in any variety of Arabic is a complex topic to which a large literature is dedicated,[1] and a full analysis of it in CCG is beyond the scope of this work. Just a few general points are addressed that are relevant in what follows.

[1] C.f., Ayoub 1981; Ditters 1992; Fassi-Fehri 1993; Shlonsky 1997; Benmamoun 2000; Kremers 2003, a.o..

3.2.1 Definiteness

In morphological terms, Levantine Arabic noun phrases are either definite or indefinite. Morphosyntactic (in)definiteness correlates closely but not entirely with the semantic categories of definiteness and specificity. Hence, morphosyntactic definiteness is treated as a matter separate from its semantic correlates.

First, Arabic noun phrases are marked for definiteness by the definite article proclitic *l-* "the." This is generally a word-level clitic, attaching to bare noun stems (1). If the noun stem begins with a coronal consonant (referred to in traditional Arabic grammar as "the sun letters," *ḥuruːf ɪššamṣ*), the article assimilates to it (2):[2]

(1) a. **l- + qamar** "moon" ⇒ **ɪlqamar** "the moon"

b. **l- + kɛlɪb** "dog" ⇒ **ɪlkɛlɪb** "the dog"

c. **l- + beːt** "house ⇒ **ɪlbeːt** "the house"

(2) a. **l- + šɛmɪs** "sun ⇒ **ɪššɛmɪs** "the sun"

b. **l- + naːr** "fire" ⇒ **ɪnnaːr** "the fire, Hell"

c. **l- + daːr** "house ⇒ **ɪddaːr** "the house"

While the definite article is a word-level affix,[3] for present purposes I ignore morphological selection, and simply treat the definite article as an identity function over noun phrase

[2]In most Levantine varieties, the sun letters include *t, θ, d, ð, r, z, s, š, ṣ, ḍ, ṭ, ẓ, ð̣, n.* In rural or Bedouin varieties in Israel/Palestine and Jordan, Standard Arabic /k/ corresponds with a [č], which is a sun letter: *čɛlɪb* "dog" → *ɪččɛlɪb* "the dog." Likewise, rural speakers often have [ð̣] in place of [ḍ], while urban speakers have [ẓ] in place of [ð̣] and [z] or [d] in place of [ð]. In derivations, I do not represent assimilation of the article to a following sun letter.

[3]While the definite article usually combines directly with the nominal head of a noun phrase, in at least some cases it can also attach to an ordinal number or comparative adjective preceding the head noun:

(3) **ɪlʔakbar waːḥad** ʕʊmru ʔarbaʕ sɪnnawaːt ulaẓɣar mɪnnu sɪnteːn
the-bigger one age-his four years and-the-smaller from-him years.dl
uʔarbaʕt ʔʊšhuːr ulʔaẓɣar mɪnnu ʕašrɪt šuhuːr ʔałła yḥaffɪð̣hʊm.
and-four months and-the-smaller from-him ten months God 3.preserve-them
"The oldest is four years old, and the one younger than him two years and four months, and the one younger than him ten months, may God preserve them."

This construction seems to be of limited productivity, typically occurring with *ʔawwal* "first," *ʔakbar* "biggest, oldest," and with indefinite pronouns such as *waːḥad* "one" or *waḥdi* "one (feminine)."

categories which returns a category specified for a definiteness feature.

(5) **l-** "the" $\vdash \mathsf{np}_{+\mathsf{def}}/\mathsf{n}_{-\mathsf{def}} : \lambda P_{et}.[\, x \mid pro'x(P)\,]$

I assume that additional lexical variants of this type returning raised NP categories are also available by lexical rule.

Indefinite nouns are typically not marked and are bare stems (although some Levantine varieties use an indefinite article *ši* "some, any" in certain contexts; c.f. Cowell 1964; Brustad 2000):

(6) a. **beːt** "(a) house"

b. **ɪlbeːt** "the house"

Because bare noun stems can be used as arguments, I assume the following lexical type-shifting rule changes a common-noun meaning to an argument meaning:

(7) *Indefinite-Raising*

$A \vdash \mathsf{n} : \lambda x.Px \quad \Rightarrow_{IR} \quad A \vdash \mathsf{s\$}|(\mathsf{s\$}|\mathsf{np}) : \lambda Q_{e\sigma d}.\lambda y_{\sigma}.[\, x \mid Px\,,\ Qx(y)\,]$

Adjectives modifying a noun must agree with the noun in definiteness, meaning that if the noun is marked as definite, the adjective must be marked with the definite article as well (8a). Likewise, an adjective modifying an indefinite noun must be a bare stem (8b):

(8) a. ɪlbeːt ɪlɪkbiːr
the-house the-big
"the big house"

b. beːt ɪkbiːr
house big
"(a) big house"

---

(4) a. **l- + ʔawwal** "first" **+ waːḥad** "one" ⇒ **ɪlʔawwal waːḥad** "the first one"

b. **l- + ʔuwla** "first.fs" **+ waḥdi** "one.fs" ⇒ **ɪlʔuwla waḥdi** "the first one (fs)"

I do not discuss this further here.

Definiteness mismatches are not ungrammatical, but cannot be interpreted as a single NP+adjective constituent. A definite noun followed by an indefinite adjective is interpreted as a copular clause, predicating the adjective of the noun (9a). An indefinite noun stem followed by a definite adjective is interpreted as a possessive construction (9b):

(9) a. ɪlbeːt ɪkbiːr
the-house big
"the house [is] big"

b. beːt ɪlɪkbiːr
house the-big
"the big/old man's house"

Relative clauses are also marked as definite or indefinite, and must generally agree with the noun that they modify. Definite relative clauses are introduced by the invariant relative particle *ɪlli* (10a), while indefinite relative clauses are not introduced by a particle, and are identical in form to a clause (10b).

(10) a. ɪssadiːg [ɪlli bɪddi ʔazuːr**u**]
the-friend rel want.1s 1s.visit-him
"the friend that I want to visit"

b. sadiːg [bɪddi ʔazuːr**u**]
friend want.1s 1s.visit-him
"a friend (that) I want to visit [him]"

All indefinite relative clauses abstract over a resumptive pronoun (11a), rather than a gap (11b):

(11) a. sadiːg bɪddi ʔazuːr**u**
friend want.1s 1s.visit-him
"a friend (that) I want to visit [him]"

b. * sadiːg bɪddi ʔazuːr
friend want.1s 1s.visit
"a friend (that) I want to visit"

Definite relative clauses can abstract either over a resumptive pronoun or over a gap, although extraction over an empty position (as is usually done in English) is generally limited to direct objects, and even there, most speakers seem to prefer use of a resumptive pronoun.

(12) a. ɪssadiːg ɪlli bɪddak ɪtzuːr**u**
the-friend rel want.2ms 2.visit-him
"the friend that you want to visit"

b. ɪssadiːg ɪlli bɪddak ɪtzuːr
the-friend rel want.2ms 2.visit-him
"the friend that you want to visit"

I treat the definiteness agreement as a matter of syntactic feature matching. Definite nouns are marked with a $+def$ feature, and indefinite nouns with a $-def$ feature, and adjectives likewise.

3.2.2 The Construct State

Arabic (along with the other Semitic languages) is noted for a possessive or genitive construction referred to traditionally as the "construct state." This is perhaps the Arabic (and Semitic) construction *par excellence* and much of the literature on Arabic syntax is dedicated to it (c.f. Borer, 1988, 1996; Benmamoun, 1992, 2000; Mohammad, 1999; Kremers, 2003; Shlonsky, 2003).

The construct state consists of an indefinite noun stem (which I refer to as the "outer noun") followed immediately by another noun phrase (the "inner NP") which can be either definite or indefinite, and which is interpreted as being in a possessive or other genitive relationship to the first:[4]

(13) a. beːt ʔabuːy
house father-my

[4] I use the expressions "outer noun" and "inner NP" to capture the observation that the possessor NP is a proper subconstituent of the noun phrase headed by the possessee. In Arabic grammatical terminology, the possessee/outer noun is referred to as the *muḍaːf ʔɪleyhi* "added to," and the possessor or inner NP as the *muḍaːf* "added."

"my father's house"

b. kæːs šaiy
cup tea
"a cup of tea"

c. sayyaːrɪt zoːǧti
car.fs wife.fs-my
"my wife's car"

d. ʔɪḥtilæːl ɪlʕiraːq
occupation the-Iraq
"the occupation of Iraq"

The first or "possessee" noun is always unmarked for definiteness, and "inherits" the definiteness of the possessor noun phrase. For example, in (14a) the inner noun is indefinite, so the whole construct NP is indefinite, while in (14b), the inner noun is definite, and correspondingly the whole construct NP is definite:

(14) a. bɪnt waziːr
daughter minister
OUTER-NOUN INNER-NOUN
"(a) minister's daughter"

b. bɪnt ɪlwaziːr
daughter the-minister
OUTER-NOUN INNER-NOUN
"the minister's daughter"

The definiteness of the construct NP is shown by the definiteness marking of modifying adjectives. An adjective modifying "daughter" in (15a) must be indefinite because the whole NP is indefinite, while an adjective modifying "daughter" in (15b) must be definite.

(15) a. bɪnt waziːr **ḥɛlwa**
daughter minister sweet.fs
"(a) minister's pretty daughter," "the pretty daughter of a minister"

b. bɪnt ɪlwaziːr **ɪlḥɛlwa**
daughter the-minister the-sweet.fs
"the minister's pretty daughter," "the pretty daughter of the minister"

I analyze the construct state by assuming a lexical rule that maps any noun stem into a category looking for a possessor:

(16) *CS*: $A : \mathsf{s\$/(s\$/np)} : \lambda P_{e\sigma d}.\lambda x_{\sigma}.[\, k \mid Pk(x)\,,\ cond'k\,]$
$\Rightarrow_{CS}$
$(\mathsf{s\$\backslash(s\$/np)})/_{\star}\mathsf{np}_{\mathsf{gen,def}\alpha} : \lambda R_{(ed)d}.\lambda P_{e\sigma d}.\lambda x_{\sigma}.[\, k \mid Pk(x)\ ,\ cond'k\,,\ R(\lambda y.poss'yk)\,]$

In the result of this rule, $poss'$ stands for an underspecified relation that can be further specified in context, or in terms the meaning of a noun (for example, in the case of relation nouns like *ʔʊmm* "mother" or *bɪnt* "daughter").

For example, the construct possessive *bɪnt ɪlwaziːr* "the minister's daughter" is analyzed as follows:

(17) a. bɪnt ɪlwaziːr
daughter the-minister
"the minister's daughter"

$$\dfrac{\dfrac{\textbf{bɪnt}\ \textit{daughter}}{\begin{array}{c}\mathsf{np}/_{\star}\mathsf{np}^{\uparrow}_{\mathsf{gen}}\\ \vdots\\ \lambda R_{(ed)d}.\lambda P_{ed}.[\, k \mid Pk\ ,\ R(\lambda x.daughter.of'xk)\,]\end{array}} \quad \dfrac{\textbf{ɪlwaziːr}\ \textit{the-minister}}{\begin{array}{c}\mathsf{np}^{\uparrow}_{\mathsf{gen}}\\ \vdots\\ \lambda R_{(ed)d}.[\, x \mid Rx\,,\ minister'x\,]\end{array}}}{\begin{array}{c}\mathsf{np}_{+\mathsf{def}}\\ \vdots\\ \lambda P_{ed}.[\, xk \mid Pk\,,\ daughter.of'kx\,,\ minister'x\,]\end{array}}<$$

Construct state NPs are islands to extraction, as shown by as shown by the unacceptability of (18a). Instead, a question word "stranding" a construct NP has to bind a resumptive pronoun in the possessor position:

(18) a. * miːn$_i$ bɪddak tazawwɪǧ bɪnt t_i?
who want.2ms marry daughter

"Whose$_i$ do you want to marry t_i daughter?"

b. mi:n$_i$ bɪddak ɪtzawwɪǧ bɪnt**u**$_i$?

who want.2ms 2.marry daughter-his

"Who$_i$ [is it that] you want to marry his$_i$ daughter?"

Using Baldridge's (2002) $\star$-modality for the possessor/genitive argument ensures that extraction out of a construct state is not possible (19):

(19)

mi:n	**bɪddak**	**ɪtzawwɪǧ**	**bɪnt**
who	*want.2ms*	*2.marry*	*daughter*
s/(s|np)	s/(s|np)	(s|np)/np	$\mathsf{np}^{\uparrow}_{-\mathsf{def}}/\star\mathsf{np}$
:	:		
		* * *——————>B * **	

The acceptable example in (18b) can be derived using the λ as before:

(20)

mi:n	**bɪddak**	**ɪtzawwɪǧ**	**bɪnt**	**-u**
who	*want.2ms*	*2.marry*	*daughter*	*his*
s/(s|np)	s/(s|np)	(s|np)/np	$\mathsf{np}^{\uparrow}_{-\mathsf{def}}/\star\mathsf{np}$	$\mathsf{np}^{\uparrow}_{+\mathsf{def}}\backslash(\mathsf{np}^{\uparrow}_{-\mathsf{def}}/\star\mathsf{np})$
			——————<	
			$\mathsf{np}^{\uparrow}_{+\mathsf{def}}$	
		——————<		
		s|np		
	——————>			
	s			
	——————λ			
	s|np			
——————>				
s				

The $\star$-modality therefore correctly predicts that construct state NPs are closed to extraction.

However, the $\star$-modality is not adequate for modeling another aspect of the construct state, which is that the inner-NP and the outer noun form a syntactic and prosodic cluster and must be adjacent: no adjective or other modifier can intervene between them:

(21) a. [bɪnt ɪlwazi:r] **ɪlḥɛlwa**

daughter the-minister the-sweet.fs

"the minister's pretty daughter," "the pretty daughter of the minister"

b. * [bɪnt **ɪlḥɛlwa** ɪlwazi:r]

daughter the-sweet.fs the-minister

The grammar so far does not rule these out, assuming that adjectives are functions of category $\mathsf{np}^{\uparrow}\backslash\mathsf{np}^{\uparrow}$, allowing the unacceptable example to be derived:

(22)

bɪnt	**ḥɛlwa**	**ɪlwaziːr**
daughter	*pretty.fs*	*the-minister*
$\mathsf{np}_{-\mathsf{def}}/_{\star}\mathsf{np}$	$(\mathsf{np}_{-\mathsf{def}}/_{\star}\mathsf{np})\backslash(\mathsf{np}_{-\mathsf{def}}/_{\star}\mathsf{np})$	$\mathsf{np}_{+\mathsf{def}}\backslash(\mathsf{np}_{-\mathsf{def}}/_{\star}\mathsf{np})$
	$\mathsf{np}_{-\mathsf{def}}/_{\star}\mathsf{np}$ (<)	
	$\mathsf{np}_{+\mathsf{def}}$ (<)	

The generalization is that the inner-NP and outer noun in a construct form a close prosodic unit, usually argued to be a prosodic word (c.f. Borer, 1988, 1996; Benmamoun, 2000, a.o.). This could be captured in CCG either by assigning prosodic labels to categories, and restricting functions in terms of those categories, or by specifying additional prosodic labels to go on argument slashes (c.f. Bozsahin, 2002).

I assume for argument's sake Selkirk's (1986) prosodic hierarchy:

(23)

intonation-phrase
|
phonological-phrase
|
(prosodic) word
|
foot
|
syllable

Bare noun stems would be assigned to category $\mathsf{np}^{\uparrow}_{w}$ ("w" for "word"); and possessor/genitive noun phrases to category $\mathsf{np}^{\uparrow}_{w}\backslash_{\star}(\mathsf{np}^{\uparrow}_{w}/_{\star}\mathsf{np}^{\uparrow})$, which are functions returning prosodic word constituents. Adjectives, on the other hand, combine with noun phrases of any category (indicated by a prosodic category variable α), and return the type of a phonological phrase (prosodic category ϕ). This would derive the correct *outer*$_i$*-inner-adj*$_i$ word order, and block the unacceptable *outer*$_i$*-adj*$_i$*-inner* word order:

(24)

bɪnt	**ɪlwaziːr**	**ɪlḥɛlwa**
daughter	*the-minister*	*the-pretty.fs*
$\mathsf{np}_{w,-def}/_{\star}\mathsf{np}$	$\mathsf{np}_{pw,+def}\backslash(\mathsf{np}_{w,-def}/_{\star}\mathsf{np})$	$\mathsf{np}_{\phi,+def}\backslash\mathsf{np}_{\alpha,+def}$
	$\mathsf{np}_{pw,+def}/_{\star}\mathsf{np}$ <	
	$\mathsf{np}_{\phi,+def}$ <	

(25)

bɪnt	**ḥɛlwa**	**ɪlwaziːr**
daughter	*pretty.fs*	*the-minister*
$\mathsf{np}_{w,-def}/_{\star}\mathsf{np}$	$(\mathsf{np}_{\iota,-def}/_{\star}\mathsf{np})\backslash(\mathsf{np}_{\alpha,-def}/_{\star}\mathsf{np})$	$\mathsf{np}_{pw,+def}\backslash(\mathsf{np}_{w,-def}/_{\star}\mathsf{np})$
	$\mathsf{np}_{\iota,-def}/_{\star}\mathsf{np}$ <	
* * *	< * **	

However, developing a prosodic extension of CCG for Arabic is beyond the scope of this project.

3.3 Pronouns, Agreement, and Resumption

In this section I consider the interpretation of pronouns together with subject agreement marking on finite verbs, which I analyze as "incorporated pronouns" (c.f. Fassi-Fehri, 1988, 1993).

The reason for treating pronouns and subject agreement markers together is that both can be used as the bases of resumptive dependencies: they can be abstracted over in the formation of relative clauses, topic-comment structures, and questions:

(26) a. kʊll waḥdi [ḥakeːt ʕan**hæ**] mɪθɪl ɪlʔamar.
every one.fs spoke.1s about-her like the-moon
"Every woman I talked about is [beautiful] like the moon."

b. wala ktæːb ʕɪrɪfɪt miːn kæːn [ɪlli katab**u**].
not.even book knew.1s who was rel wrote-him
"Not one book did I know who wrote it."

(27) a. miːn (ɪlli) bɪddak tɪḥki maʕ**u** hɛllaʔ?
who rel want.2ms 2.speak with-him now
"Who do you want to speak with now?"

b. šu (ʔɪlli) bɪddɪk iyyæːˑ.
what rel want.2fs obj-him
"What do you want [it]?"

While the use of resumptive pronouns may be marginal in English (or, at least, in Standard English), it is pervasive in both Standard Arabic and the dialects. In fact, it is the most common means by which long-distance dependencies are formed.

Resumptive pronouns are an issue to be dealt with because of examples like the following, in which a topical wala-phrase takes as its comment a sentence containing a resumptive pronoun at some arbritrary depth of embedding:

(28) a. [wala ḥada]$_i$ baḥɪbb**u**$_i$.
not.even one ind.1s.like-him
"Not one do I like [it]."

b. [wala waːḥad]$_i$ bakat baṣmat**u**$_i$ waːḍḥa ʔɛbadan.
not.even one was.fs fingerprint.fs-his clear.fs never
"Not one person [was such that] his fingerprint was ever clear."

c. [wala ktæːb]$_i$ ʕɪrɪft [$_q$ miːn kæːn [$_{rc}$ ɪlli katab**u**$_i$]].
not.even book knew.1s who was rel wrote-him
"Not one book [was such that] I knew who it was that wrote it."

Note in particular that the resumptive pronoun can occur inside syntactic islands, such as a noun phrase (28a), an embedded question or a relative clause (28b shows a resumptive pronoun embedded inside both).

Nonetheless, resumptive dependencies can be intepreted as predicate abstracts. For example, the meanings of (28b) and (28c) could be represented as follows, with lambda-abstraction over the interpretations of the pronouns:

(29) a. ⟦not one person⟧(λy.⟦y's fingerprint was clear⟧)

b. ⟦not one book⟧(λy.⟦I knew who it was that wrote y⟧)

Assuming that function composition is blocked by syntactic islands, function composition cannot be used for deriving these abstracts, and some other mechanism must be used.

This means that such a grammar would have to have a way to capture the following generalizations (which may be paraphrases of one another):

(30) i. A sentence containing a pronoun embedded at some arbitrary depth can be interpreted as a semantic function of type et.

ii. A pronoun can be interpreted as a variable at the foot of a long-distance dependency and can violate syntactic islands in doing so.

The strategy I pursue for capturing these is to use the rules presented in Chapter 2 in order to abstract over resumptive pronouns. The pronominal presupposition percolation rules allow the pronoun condition associated with a resumptive pronoun to "percolate" to the top level of a logical form, where the λ-rule can access it.

I assume that types for clitic pronouns include the following:

(31) a. **-u** $\vdash \mathsf{s}\backslash(\mathsf{s}/\mathsf{np}) : \lambda P_{et}.[\, x \mid Px\,,\ pro'x(him')\,]$

b. **-hæ** $\vdash \mathsf{s}\backslash(\mathsf{s}/\mathsf{np}) : \lambda P_{et}.[\, x \mid Px\,,\ pro'x(her')\,]$

c. **-hʊm** $\vdash \mathsf{s}\backslash(\mathsf{s}/\mathsf{np}) : \lambda P_{et}.[\, x \mid Px\,,\ pro'x(them')\,]$

d. **-niː** $\vdash \mathsf{s}\backslash(\mathsf{s}/\mathsf{np}) : \lambda P_{et}.[\, x \mid Px\,,\ pro'x(speaker')\,]$

e. **-ak** $\vdash \mathsf{s}\backslash(\mathsf{s}/\mathsf{np}) : \lambda P_{et}.[\, x \mid Px\,,\ pro'x(you.ms')\,]$

f. **-ɪk** $\vdash \mathsf{s}\backslash(\mathsf{s}/\mathsf{np}) : \lambda P_{et}.[\, x \mid Px\,,\ pro'x(you.fs')\,]$

g. **-kʊm** $\vdash \mathsf{s}\backslash(\mathsf{s}/\mathsf{np}) : \lambda P_{et}.[\, x \mid Px\,,\ pro'x(you.p')\,]$

The conditions on the presuppositions are based on a suggestion by Kamp and Reyle (1993) for treating grammatical gender in presupposition, which is to copy grammatical features as DRS conditions. The reason for this is that grammatical gender marking has subtle referential properties in Levantine Arabic, and hence needs to represented somehow as part of meaning representation.

The use of grammatical gender as a semantic condition is motivated by gender agreement with referential and deictic uses of pronouns. For example, in a context in which someone is looking at a car that he or she admires, the speaker might say (32), the feminine singular pronoun agreeing with the grammatical gender of the word *sayyaːra* "car," even though the word itself has not been said and is merely implicit from the context:

(32) baḷıbbhæ.
ind.1s.like-her
"I like it."

This is a particular problem for the 3rd-person-feminine-singular, which has the following uses:

(33) i. Female biological sex;
ii. Nouns ending with the "bound-t" (Arabic *taa marbuːṭa*) morpheme;
iii. Nouns unmarked for gender but conventionally specified as feminine (e.g. *šams* "sun," *ḥarb* "war," *daːr* "house," etc.);
iv. Inanimate plurals with non-individuated reference;
v. Human "broken" (i.e. non-affixal) plurals with non-individuated reference.

Categories (33iv) and (33v) have been referred to as *deflected agreement* by Belnap (1991), and present a particular problem for the treatment of gender as a referential category, because it allows for a noun that denotes human males to be referred to with a feminine-singular pronoun (or verbal agreement marking).

For example, (34) show two sentences from Rural Palestinian Arabic (c.f. Schmidt and Kahle, 1918, 1930; Blau, 1960; Younes, 1982, 1984, 1993, 1995; Herzallah, 1990; Cadora, 1992) in which this takes place.

(34) a. lammın **sımʕu** haːð̣a, **kaːmat ılʕʊrbæːn tıhğım** ʕassaraːyya.
when heard.3mp this rose.fs the-Arabs 3fs.attack upon-the-palace
"When they heard this, then the Arabs up and attacked the palace." (Schmidt and Kahle, 1918, §15.3)

b. mæːšu ʔarbaʕ χamst iyyæːm wɪṣlu **lʕarab** ɪlli bɪddhɪm yɪɣzuː**hæ**.
went.3mp four five days reached.3mp the-Arabs rel want.3mp 3.raid.mp-her
"They went [for] four [or] five days [until] they reached the Arabs that they wanted to raid them." (Schmidt and Kahle, 1918, §38.17)

(34a) describes an attack by a band of Bedouin warriors on a Turkish garrison in what is now Jordan. The band has been waiting for signal from their leader in the form of a gunshot. The subordinate clause *lammɪn sɪmʕu haːḍa* "when they heard that" shows *sɪmʕu* "(they) heard" marked in the 3rd-person-masculine-plural, while the main clause shows a compound tense-aspect construction referring to the same subject but marked in the feminine singular, apparently indicating the collective character of the attack. Similarly, in (34b) the noun phrase *ɪlʕarab* "the Arabs, Bedouin" is modified by a relative clause *ɪlli bɪddhɪm yɪɣzuːhæ* "that they wanted to raid" abstracting over a 3rd-person-feminine-singular pronoun, apparently to refer to the group in question in a collective, non-individuated sense.

In lieu of a more adaquate analysis, I simply treat the morphological features as DRS-conditions (c.f. Kamp and Reyle, 1993)

3.3.1 Question Formation

As was mentioned above, question formation in Arabic can involve either extraction or resumption:

(35) a. **ʔaiy ʔʊɣniyya** ḥɛbbeːt**hæ**?
which song.fs liked.2ms-her
"Which song did you like [it]?"

b. **ʔaiy ʔʊɣniyya** ḥɛbbeːt ʔakθar šiː?
which song.fs liked.2ms-her more thing
"Which song did you like more??"

(36) a. ʔɪnti btɪʕɪrfi **maʕ miːn** ḥakeːti bɪlmawḍuːʕ.
you.fs ind-2.know.2fs with who spoke.2fs in-the-matter
"You know with whom you spoke about the matter."

b. ɪbtɾʕɪrfi **miːn** ḥakeːt maʕ**u**?
ind.2.know.2fs who spoke.1s with-him
"Do you know who I talked with today?"

This is true when the dependency is out of a subordinate clause:

(37) a. **šu** bɪddak taːkol ʕalʕaša?
what want.2ms 2.eat upon-the-dinner
"What do you want to eat for dinner?"

b. ʔana baʕmlɪkʊm ʔɛkɪl. **šu** bɪddak tæːkl**u**?
I ind.1s.make-to-you.mp food what want.2ms 2.eat-him
"I'll make y'all some food. What do you want to eat [it]?"

(38) a. **ʔaiy ʔʊɣniyya** bɪddak tɪsmaʕ?
which song.fs want.2ms 2.hear
"Which song do you want to hear?"

b. **ʔaiy ʔʊɣniyya** bɪddak tɪsmaʕ**hæ**?
which song.fs want.2ms 2.hear-her
"Which song do you want to hear [it]?"

When an oblique (prepositional) argument is questioned, the whole prepositional phrase must be extracted (39a), or just the question word binding a resumptive pronoun in the object position of the pronoun (39b). Unlike what is the case in English, the prepositional cannot be "stranded" by fronting of the question word (39c):

(39) a. **maʕ miːn** bɪddɪk tɪḥki ya zeːna?
with who want.2fs 2.speak voc Zeyna
"With whom do you want to speak, Zeyna?"

b. **miːn** bɪddɪk tɪḥki maʕ**u** hɛlla??
who want.2fs 2.speak.2fs with-him now
"Who do you want to speak with [him] now?"

c. * **miːn** bɪddɪk tɪḥki **maʕ**?
who want.2fs 2.speak.2fs with

The extraction and resumption dependencies differ in that extraction is subject to syntactic island constraints, while resumption is not (c.f. Aoun and Benmamoun, 1998; Aoun and Choueiri, 2000; Aoun et al., 2001; Choueiri, 2002, . See above for examples of extraction being blocked from NP-islands).

(40) *Adjunct Island*:

a. **miːn** ṭɪlɪʕti [biduːnma tɪḥ̣ki maʕ**u**]?
who left.2fs without-that 2.speak.2fs with-him
"Who did you leave without talking to him?"

b. * **maʕ miːn** ṭɪlɪʕti [biduːnma tɪḥ̣ki]?
with who left.2fs without-that 2.speak.2fs

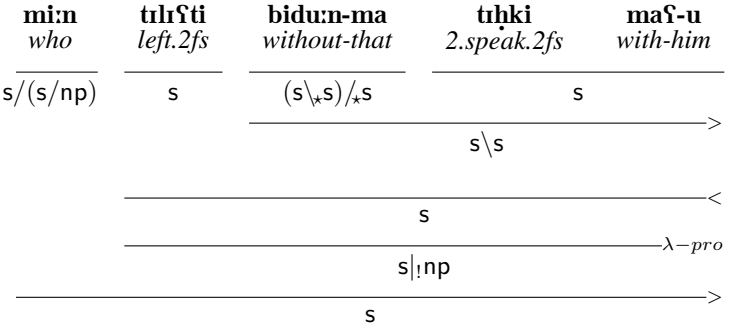
(41) *Interrogative Island*:

a. **ʔaiy ktæːb** maʕɪrɪfti [miːn kæːn ɪlli katab**u**]?
which book not-knew.2fs who was rel wrote-him
"Which book did you not know who wrote it?"

b. * **ʔaiy ktæːb** maʕɪrɪfti [miːn kæːn ɪlli katab]?
which book not-knew.2fs who was rel wrote
"Which book did you not know who wrote?"

The contrast between extraction dependencies and resumption dependencies can be captured by the use of function composition to model the former, and the λ-rule to model the latter (the logical form is suppressed in this example).

(42)



Following Baldridge (2002), extraction is not possible because *biduːnma* "without" takes its arguments with slashes decorated with the $\star$-modality:

(43)

maʕ miːn	**tɪlɪʕti**	**biduːn-ma**	**tɪḥ̣ki**
with-who	*left.2fs*	*without-that*	*2.speak.2fs*
s/(s/pp)	s	(s\s)/$_\star$s	s/pp
$\lambda P_{ed}.\lambda x.Px$	you_y left_s	$\lambda p_d.\lambda q_d.\neg[q \,\&\, p]$	$\lambda z.\text{you}_\text{y}$ spoke_s with z
		* * *——————>$_B$	* **

The use of the λ-rule along with the $\star$-modality therefore correctly predicts that resumptive dependencies can violate islands.

3.3.2 Resumption in Relative Clauses

As was noted above, there are two kinds of relative clauses in Levantine Arabic: the so-called "definite" and "indefinite" relative clauses. The "definite" relative clauses are headed or subordinated by the relative particle *ʔɪlli*, *halli* or *yalli* "that, which," referred to here as *illi*-relatives. These are typically used to modify definite nouns (44a).[5] Indefinite relative clauses lack a subordinating particle and are hence otherwise indistinguishable from an ordinary clause. Indefinite relative clauses are used to modify indefinite nouns (44b):

(44) a. **ɪššæbb** [$_{RC}$ ɪlli kʊnt baḥ̣ɪbb**u**] bɪḥ̣ɪbbni.
the-youth rel was.1s ind.1s.love-him ind.3.love-me
"They boy that I used to love loves me."

b. ʔana mɪš mʊmkɪn asammi ʔɪbni ʕala ʔɪsɪm **šæbb** [$_{RC}$ kʊnt
I not can 1s.name son-my upon name youth was.1s
aḥ̣ɪbbu bɪlmaːḍi].
1s.love-him in-the-past
"I can't name my son with the name of a boy I used to love in the past."

However, *illi*-relative clauses are also used to modify indefinites with specific interpretations in addition to definite nouns:

[5]Of these, *yalli* is more typical of Syrian and Lebanese varieties of Levantine Arabic, while *ɪlli* is more typical of Jordanian and Palestinian.

(45) a. χʊṭbɪt bɪnt [$_{RC}$ ɪlli kʊnt aḥlam fiːhæ]
engagement.fs girl rel was 1s.dream in-her
"getting engaged to a girl that I have been dreaming about"

b. bhadæːk ɪlwaʔɪt kæːn fiː ktiːr næːs [$_{RC}$ yɛlli štaɣallu lmawʔɛf].
in-that the-time was expl many people rel worked.3p the-situation
"In that time there were many people who took advantage of the situation." (Cowell, 1964, 499)

This shows that the association of *illi*-relative clauses with definite nouns is not simply a matter of them matching in terms of a morphosyntactic definiteness feature. Instead, it seems to have to do with the kind of interpretation that relative clauses can have.

Illi-relative clauses can also be used as noun phrases in their own right. In many instances, these have interpretations corresponding to the interpretations of English free relative clauses:

(46) a. [$_{RC}$ ʔɪlli bɪddu yoːkɪl ṣubaːr] bɪddu yitḥammal šoːku.
rel want.3ms 3.eat prickly-pear want.3ms 3.carry fork-his
"Whoever wants to eat cactus fruit needs to bring his fork."

b. [$_{RC}$ ɪlli ʔaːl heːk] bɪǧuːz ḥass ḥæːlu ʔɪnnu naːʔɪṣ ʔaw maʕɪndu θɪʔʔɛ
rel said this maybe felt self-his that lacked or not-at-him confidence.fs
binafsu ʔaw bibaladu.
in-self-his or in-country-his
"Whoever said this maybe felt himself lacking or didn't have any confidence in his self or in his country."

Elsewhere, they can be interpreted as definite nouns, which is to say with specific referential interpretations:

(47) [$_{RC}$ **ʔɪlli ǧæbuː**] mɪš raḥ ɪkaffi.
rel brought.3mp-him not fut 3.suffice
"What they brought isn't going to be enough." (Elihay, 2007, 223)

When *illi*-relative clauses are used as noun phrases, they are frequently headed by *halli*, a variant of *ılli* derived by prefixing the demonstrative clitic *hæl-* to it: *hal-ılli* → *halli* (c.f. Blau 1960, 259-261, Elihay 2007, 153):

(48) a. btaʕrɛf [$_{RC}$ **halli ḍarabak**]?
ind.2s.know rel hit-you
"Do you know the one who hit you?" (Cowell, 1964, 494)

b. uhʊm kaʕdiːn yʊχʊbzu [$_{RC}$ **halli šakku ʕalmaraːʕi**]
and-they sitting.mp 3.bake.p rel desired.3mp upon-the-pastures
ǧaːbu ḥalæːlhɪm uṭallu ʕalwæːd.
brought.3mp herds-their.mp and-descend.3mp upon-the-valley
"...and while they were still baking their bread, the [one] who had wanted pasturage brought their flocks and came down into the valley."(Schmidt and Kahle, 1918, 38.2)

I conclude therefore that the definite relativizer behaves much like the definite article, in that its interpretation presupposes a discourse referent.

illi-relative clauses can abstract either over empty direct argument positions (such as direct objects), or (more typically) over resumptive pronouns. For example, (49) shows two sentences that are paraphrases of each other. In (49a) the noun *ılwuquːd* "the fuel" is modified by a relative clause abstracting over the missing direct object of the verb *byəstaʕmlu* "(they) use," while in (49b) the corresponding relative clause abstracts over a pronoun in the direct object position:[6]

(49) a. byədərsu **lwuquːd** [yalli byəstaʕmlu ləṣṣawaːrːχ uhalmasaːʔɛl.
ind-3.study.p the-fuel rel ind.3.use.p to-the-rockets and-this-things
"They study the fuel that they use for rockets and these things."
(Cowell, 1964, 497)

[6]The 3rd-person-masculine-singular clitic pronoun is *-u*. When attached with vowel-final stems, it is pronounced as a lengthening of the vowel. Hence, *byəstaʕmlu* "they use" does not host an object pronoun and ends with a short vowel, while *byəstaʕmluː* "they use him/it" does host an object pronoun and ends with a long vowel.

b. byədərsu **lwuquːd** [yalli byəstaʕmlu**ː** ləṣṣawaːrːχ uhalmasaːʔɛl].
ind-3.study.p the-fuel rel ind.3.use.p-him to-the-rockets and-this-things
"They study the fuel that they use [it] for rockets and these things."

I assume that the relative particle *ʔɪlli* takes a property (type et) as its argument and so has the following category:

(50) **ɪlli** $\vdash \mathsf{np}^{\uparrow}/(\mathsf{s}|\mathsf{np}) : \lambda P_{ed}.\lambda x_{x\in\{i\}}.[\, i \mid Pi \,]$

The intuition behind the type is that *illi*-relative clauses are effectively definite noun phrases, and so they introduce discourse referents. Accordingly, the relative particle is effectively a definite article for sentences.

For example, the relative clause *ɪlli šʊftu* "who I saw," "that I saw him" is derived as follows (the meaning representation is shown in DRS-format):

(51) a. ɪlli šʊftu
rel saw.1s-him
"that I saw [him/it]"

b.

ɪlli *rel*	**šʊft** *saw.1s*	**-u** *him*
$(\mathsf{np}\backslash\mathsf{np})/(\mathsf{s}\|\mathsf{np})$	s/np	$\mathsf{s}\backslash(\mathsf{s}/\mathsf{np})$
$\lambda P_{ed}.\lambda Q_{ed}.[\, Qj\,,\ Pj\,]$	$\lambda y.[\, pro'i(speaker')\,,\ saw'yi\,]$	$\lambda P_{et}.[\, pro'j(him')\,,\ Pj\,]$
	s/np : $[\, pro'i(speaker')\,,\ pro'j(him')\,,\ saw'ji\,]$ (<)	
	$\mathsf{s}\backslash\mathsf{np}$: $\lambda y_{\in x}.[\, pro'i(speaker')\,,\ \delta[y\|him'y]\,,\ saw'yi\,]$ ($\lambda-pro$)	
$\mathsf{np}^{\uparrow}$: $\lambda Q_{ed}.[\, Qj\,,\ [\, pro'i(speaker')\,,\ pro'j(him')\,,\ saw'ji\,]\,]$ (>)		

Note that the λ-rule correctly predicts that relative clauses can be formed over 1st- and 2nd-person pronouns as well as over verbal subject-marking. This is illusrated by the

pair of sentences in (52), both of which contain the relative clause formed over the sentence *ḥakeːt maʕɪk ɪṣṣʊbɪḥ* "I talked with you this morning."

For example, (52a) and (52b) share the same relative clause *ɪlli ḥakeːt maʕɪk ɪṣṣʊbɪḥ* "who I talked to you this morning," which can be interpreted as abstracting either over the subject of the verb (52a), or over the object of the preposition (52b):

(52) a. ʔana [ɪlli ḥakeː**t** maʕɪk ɪṣṣʊbɪḥ].
I rel spoke.1s with-you.fs the-morning
"I am [who talked with you this morning]."

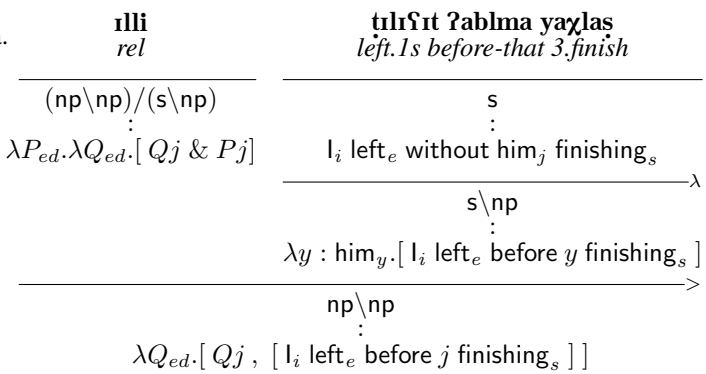
b. ʔɪnti [ɪlli ḥakeːt maʕ**ɪk** ɪṣṣʊbɪḥ].
you.fs rel spoke.1s with-you.fs the-morning
"You are [who I talked with this morning]."

The λ-rule correctly predicts this.

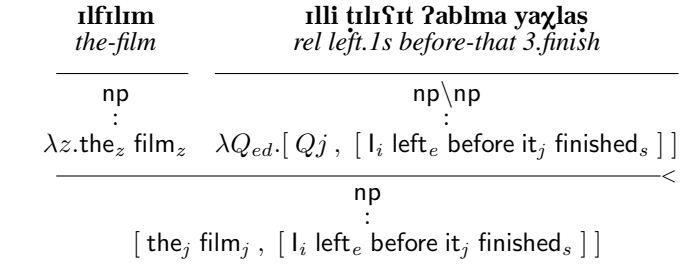
The λ-rule also correctly predicts that the resumptive dependency in a relative clause can violate island constraints (c.f. Aoun and Benmamoun, 1998; Aoun and Choueiri, 2000; Aoun et al., 2001; Aoun and Li, 2003; Choueiri, 2002; Malkawi and Guilliot, 2007). For example, (54) shows the derivation for (53), in which a resumptive dependency crosses an adjunct-island (the derivation is simplified by leaving out the adjective phrase *ɪlwaḥiːd fi ḥayæːti* "the only… in my life"):

(53) ɪlfɪlɪm ɪlwaḥiːd fiḥiyæːti [ɪlli ṭɪlɪʕɪt [ʔablma **y**aχlaṣ]].
the-film the-single in-life.fs-my rel left.1s before-that 3.finish
"The one film in my life that I left before it finished in the cinema."

(54) a.



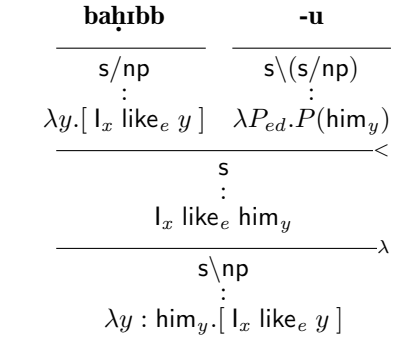
b.



As was discussed above, in*illi*-relative clauses are formed by means of resumptive dependencies only. They can be derived by means of the λ-rule above:

(55) a. waːḥad [baḥɪbbu].
one *ind.1s.like-him*
"one that I like [him]"

b.



To account for the use of in*illi*-relative clauses as NP-modifiers, I assume a unary type-shifting rule proposed by Hockenmeier (2003) and Hockenmeier and Steedman (2002):

(56) *Adj*

$$\Gamma \vdash \mathsf{s}\backslash\mathsf{np} : Q_{ed} \quad \Rightarrow_{adj} \quad \Gamma \vdash \mathsf{np}\backslash\mathsf{np} : \lambda P_{ed}.\lambda x : x \in dom(Q).[Px\ ,\ Qx]$$

The applies to an open sentence interpreted as a property of individuals Q, and returns a function from the set of such properties to a property taking Q as its domain and returning the intersection of Q and the property argument. This allows in*illi*-relative clauses to be used as modifiers:

(57) a. waːḥad baḥɪbbu.
one ind.1s.like-him
"one that I like"

$$\dfrac{\dfrac{\textbf{waːḥad}}{\begin{array}{c}\mathsf{np}\\ \vdots\\ \lambda x.\mathsf{person}_x\end{array}} \quad \dfrac{\textbf{baḥɪbbu}}{\begin{array}{c}\mathsf{s}\backslash\mathsf{np}\\ \vdots\\ \lambda y : \mathsf{him}_y.[\ \mathsf{I}_x\ \mathsf{like}_e\ y\ ]\end{array}}}{\begin{array}{c}\mathsf{np}\backslash\mathsf{np}\\ \vdots\\ \lambda Q_{ed}.\lambda y : \mathsf{him}_y.[\ Qy\ \&\ \mathsf{I}_x\ \mathsf{like}_e\ y\ ]\end{array}}\,adj}{\begin{array}{c}\mathsf{np}\\ \vdots\\ \lambda y : \mathsf{him}_y.[\ \mathsf{person}_y\ \&\ \mathsf{I}_x\ \mathsf{like}_e\ y\ ]\end{array}}\,<$$

Topic-comment structures are very much like *illi*-relative clauses. For example, (28c) above, repeated here as (58a), can then be analyzed as in (58b):

(58) a. **wala ktæːb** ʕɪrɪft miːn kæːn ɪlli katab**u**.
not.even book knew.1s who was rel wrote-him
"Not one book [was such that] I knew who it was that wrote it."

b.

$$\dfrac{\dfrac{\begin{array}{c}\textbf{wala ktæːb}\\ \textit{not.even book}\end{array}}{\begin{array}{c}\mathsf{s}/(\mathsf{s}|(\mathsf{s}|\mathsf{np}))\\ \vdots\\ \lambda P_{ed}.\mathsf{not\ one}_k\ \mathsf{book}_k(P)\end{array}} \quad \dfrac{\begin{array}{c}\textbf{ʕɪrɪft miːn kæːn ɪlli katab-u}\\ \textit{knew.1s who was rel wrote-him}\end{array}}{\begin{array}{c}\mathsf{s}\\ \vdots\\ \mathsf{I}_i\ \mathsf{knew}_e\ \mathsf{who_y}\ \mathsf{it\ was\ that}\ \ \mathsf{wrote}_s\ \mathsf{it}_j\end{array}}}{\begin{array}{c}\mathsf{s}\\ \vdots\\ \mathsf{not\ one\ book}_k\ \mathsf{did\ I\ know\ who}_y\ \mathsf{it\ was\ that\ wrote\ it}_k\end{array}}\,<$$

To summarize, the use of the λ-rule and the pro-rule are able to capture a variety of data involving pronominal resumption in Levantine Arabic.

3.4 Levantine Arabic Verbs

3.4.1 Verb Inflection

Levantine Arabic verbs have four stem types: the *perfect*, the *imperfect*, and the active and passive participles.[7] By convention, the citation form of a verb is given as a pair of the perfect and imperfect stems: *faʕal-yɪfʕal* "do, make," *ʔɛkal-yoːkɪl* "eat," *ʔɪttafag-yattafɪg* "agree," etc. Occasionally, the active participle will also be included: *faʕal-yɪfʕal-fæːʕɪl* "do, make," *ʔɛkal-yoːkɪl-mæːkɪl* "eat," *ʔɪttafaq-yattafɪg-muttafɪg* "agree," etc.

The perfect and imperfect stems are commonly referred to as the *finite* stems, because they show agreement morphology that specifies the person of the subject, and hence because each can be used without an expressed subject (in other words, they allow "pro-drop" as discussed above):

(59) a. (ʔana) b**a**ḥ**ɪ**bbɪč.
I *ind.1s.love-you.fs*
"I love you."

b. (ʔɪnti) bɪ**t**ḥ**ɪ**bb**iː**ni.
you.fs *ind.2.love.fs-me*

[7]The perfect and imperfect are sometimes referred to as the past and present tense forms. I do not go into the intricacies of Arabic tense-aspect interpretation, and so these two sets of terms can be considered interchangeable for the purposes of the discussion. The imperfect stems have two or three sub-forms, depending on region and socio-economic background. In most urban dialects, there are three forms: the *y-imperfect*, the *b-imperfect*, and the progressive. The y-imperfect is the base imperfect form from which the others are derived (so-called because the masculine-singular prefix is *y-*). The b-imperfect prefixes a clitic *b-* onto the y-imperfect (with ensuing phonotactics), and the progressive the proclitic *ʕam-* (or sometimes *ʕammaːl*).

The y-imperfect is used as a subjunctive/irrealis stem, corresponding roughly to the English infinitive (Blau, 1960; Mitchell and al Hassan, 1994; Brustad, 2000). In varieties that contrast the b-imperfect and the progressive, the b-imperfect is a habitual and/or vivid future; while the progressive describes eventualities in progress. In rural varieties, and more generally in Jordan, there is a two-way opposition between the y-imperfect and b-imperfect, the former expressing subjunctive/irrealis mood, and the latter indicative mood. However, *qaːʕɪd*, the active participle of *qaʕad-yɔqʕɔd-qaːʕɪd* "sit" can be used to expressive progressive aspect.

"You love me."

c. (ʔabuːy) bɪḥɪbbɪč.
father-my ind.3.love-you.fs
"My father loves you."

The perfect stems have different agreement paradigms: the perfect stems show agreement marking only with suffixes (in table 3.1):

		Number	
		Singular	*Plural*
1st-Person	-	**-t** (ʕɪmɪlt, ʕɪmɪlɪt "I, you (ms.) did")	**-naː** (**ʕɪmɪlna** "We did")
2nd-Person	*Masc.*		**-tuː** (ʕɪmɪltu "you did")
	Fem.	**-tiː** (ʕɪmɪlti "you (fs.) did")	**-tɪn**† (ʕɪmɪltɪn "you (fp) did")
3rd-Person	*Masc.*	- (ʕɪmɪl "he did")	**-uː** (ʕɪmlu "they did")
	Fem.	**-at**, **-ɪt** (ʕɪmlat, ʕɪmlit "she did")	**-ɪm**† (ʕɪmɪlɪm "they (fp) did")

Table 3.1: Agreement Paradigm for Perfect Stems
(†Forms used only in rural varieties)

In contrast, the imperfect stems show agreement with both prefixes and suffixes (table 3.2).

Because the participles lack person-marking, they are often claimed to require an expressed subject when used as a clausal predicate (60: c.f. Bakir 1980; Eid 1983, 1991, 1993; Eisele 1992, 1999; Benmamoun 2000), or, in other words, they are claimed not to allow pro-drop:

(60) a. ɪlyoːm **ʔana mʊštariː**lak sabaʕ karaːtiːn baṣal.
the-day I bought-to-you.ms seven cartons onion
"Today I bought you seven cartons of onions."

b. maškuːr ʔaχiː bɛss fiː ṣuːrteːn **ʔana šaːyɪf**hʊm mɪn gabɪl.
thankful brother-my but exist picture.fual I seeing-them from before
"Thank you, brother, but there are two pictures that I have already seen."

		Number	
		Singular	*Plural*
1st-Person	-	**a-** (*aʕɪmɪl* "I do")	**n-** (*nɪʕɪmɪl* "we do")
2nd-Person	*Masc.*	**t-** (*tɪʕɪmɪl* "you (ms) do")	**t-…-uː** (*tɪʕɪmlu* "you (mp) do")
	Fem.	**t-…-iː** (*tɪʕɪmli* "you (fs.) do")	**t-…-ɪn**† (*tɪʕɪmlɪn* "you (fp) do")
3rd-Person	*Masc.*	**y-,ɪ-** (*yɪʕɪmɪl* "he do"')	**y-…-uː** (*yɪʕɪmlu* "they do")
	Fem.	**t-** (*tɪʕɪmɪl* "she do")	**y-…-ɪn**† (*yɪʕɪmlɪn* "they (fp) do")

Table 3.2: Agreement Paradigm for Imperfect Stems
(†Forms used only in rural varieties)

However, in natural use, participles are frequently used with pro-drop, as in the examples in (61) in which participles (shown in bold) are used with contextually-understood subjects:

(61) a. štreːtlu ʔɛkal χaṣṣ lɪlɪklæːb ulæːkɪm **mɪš raːḍi** yoːklu.
bought.1s-to-him food special to-the-dogs but not willing 3.eat-it
"I bought him special food for dogs but [he] is not willing to eat it."

b. ʔana šaχṣiyyan žarrabɪtu bɛss mu **mušteriyya** mɪn ʕɪndhæ.
I personally tried.1s-him but not buying.fs from at-her
"Personally, I tried it, but I didn't buy from her."

c. moːdiːl ʔalfeyn utalæːti bɛss **mʊšteriː**hæ ʔalfeyn warbaʕa,
model thousand.dual and-three but bought-her thousand.dual and-four
mæːšiyya miːt uʕašara kiːlo šu tɪsawwi?
going.fs hundred and-then kilometers what 3fs.make
"[It is] a 2003 model, but [I] bought it [in] 2004. [It] has gone 110,000km. What should it be worth?"

d. maškuːra ʕaṣṣawwar bɛss **šaːyfiːn**hʊm mɪn ġabɪl.
thankful.fs upon-the-pictures but seeing.mp-them from before
"Thanks for the pictures, but we have already seen them."

For this reason, I treat participles as being on par with finite verbs.

3.5 Word Order

Levantine Arabic has very flexible word order by virtue of its rich verbal agreement marking. Subjects can either precede or follow the verb, or be expressed merely by verbal agreement marking (c.f. "pro-drop").

(62) a. bɪtɣiːb ɪš-šɛms ɪsseːʕa lχamsa.
ind-set.3fs the-sun.fs the-hour the-fifth
"The sun sets at five o'clock."

b. hallaʔ **sayyaːrt iššarka** bɪtwaṣṣɪlna.
now car.fs the-company ind-deliver.3fs-us
"Now the company car will take us."

c. waṣalni mɪnha **ʔaʕlam** ɪmbeːriḥ.
reached-me from-her note yesterday
"I got a note from her yesterday."

d. ʔaχaðt waðiːfa mniːḥa.
took.1s2 job.fs good.fs
"I got a good job."

Of these, V…S is the most marked, as it is used in sentences in which the subject is discourse-new (Khan, 1988; Brustad, 2000) and in which the subject tends to be prosodically "heavy," containing a relative clause or other modifiers, and/or indefinite.[8]

[8]There is an ongoing debate in the literature about Levantine Arabic and other dialects concerning which of SV and VS is more basic (Bakir, 1980; Fassi-Fehri, 1988; Eid, 1991, 1993; Fassi-Fehri, 1993; Diesing and Jelinek, 1995; Plunkett, 1996; Mohammad, 1998; Abdul-Raof, 1999; Doron and Heycock, 1999; Alexopoulou et al., 2003; Brustad, 2000; Mohammad, 2000; Heycock and Doron, 2003).

One school of thought takes VS to be basic, and that SV is actually Topic-V, with the apparent pre-verbal subject actually being in a topicalized position with the agreement marking on the verb functioning as a resumptive pronoun that the topic binds (Bakir, 1980; Fassi-Fehri, 1988; Khan, 1988; Moutaouakil, 1989; Plunkett, 1996; Abdul-Raof, 1999; Doron and Heycock, 1999; Alexopoulou et al., 2003; Brustad, 2000; Heycock and Doron, 2003). This analysis is motivated by parallels between pre-verbal subjects and topicalized object NPs, and in particular a widely noted but poorly understood *specificity* constraint that is applied to both (Bakir, 1980; Mohammad, 1998, 2000; Brustad, 2000, a.o.).

The other school of thought takes pre-verbal subjects to be proper subjects, which is to say in a dedicated subject position. This approach is motivated partly by theory-internal considerations, but also by the observation that pre-verbal subjects are subject to different constraints on extraction than are topicalized object NPs

Direct and oblique objects can permute with each other, but tend to cluster together, meaning that they cannot be separated by the subject. The subject can, in general, precede or follow the verb and the object(s).

(63) a. Instransitive verb: SV, VS, V

b. Transitive verb with independent object: SVO, VSO, VOS, VO

c. Di-transitive verb with independent objects: (S)-V-(S)-DO-PP-(S), (S)-V-(S)-PP-DO-(S), (S)-V-(S)-IO-DO-(S)

Levantine Arabic also allows mixed word order in gapping sentences, meaning that the order of arguments in the second conjunct need not correspond to the order in the first:

(64) a. ʔaʕṭeːt [ɪktæːb laʔɪmaːli] w-[lamæːǧɪd šariːṭ].
gave.1s book to-Emily and- to-Maged tape
verb DO PP PP DO
"I gave a book to Emily and to Maged a tape." (*Mixed Order*)

b. ʔaʕṭeːt [ɪktæːb laʔɪmaːli] w-[šariːṭ lamæːǧɪd].
gave.1s book to-Emily and- tape to-Maged
verb DO PP DO PP
"I gave a book to Emily and a tape to Maged." (*Parallel Order*)

Following argumentation in Hoffman (1995) and Baldridge (2002), I take this to indicate that verbs in Levantine Arabic should be assigned *set-categories*, which are unordered sequences of arguments. For example, the type for the *give*-class verb *ʔaʕṭa-yaʕṭi*

(Mohammad, 2000).

However, it is not clear what "basic word order" should mean with respect to Arabic, because the different sentence types have different distributions in terms of the kinds of discourse context they occur, and because the notion seems presuppose a theoretical commitment to how pro-drop sentences are to be analyzed. Moreover, the SV and VS schools of thought also overlook the fact that in purely statistical terms, sentences with implicit subjects (i.e., pro-drop subjects, those with V word order) are the most common. Accordingly, I take VO to be the basic word order from which both VS and SV are derived: in other words, Arabic is not a "pro-drop" language, but rather a "subject-add" language (this approach is inspired by the approach to pro-drop phenomena in Arabic and other languages developed in Lexical Functional Grammar (Fassi-Fehri, 1988, a.o.)). In addition to capturing the primacy of V word order, this is assumption is also convenient for the purposes of the present analysis because it facilitates the analysis of subordinating verbs.

in (65c) includes a set category inside a set category, in order to capture the order of the subject relative to the object cluster:

(65) a. **næːm** "(he) slept" $\vdash$ s|np : $\lambda x.x$ *slept*

b. **ʔɛkal** "(he) ate" $\vdash$ s{|np, /np} : $\{\lambda y, \lambda x\}.x$ *ate* y

c. **ʔaʕṭeːt** "I gave" $\vdash$ s{{/np, /pp}, |np} : $\lambda x.\{\lambda y.\lambda z\}.x$ *gave* z *to* y

Nonetheless, in what follows I will ignore the set notation, and represent arguments in the order in which they are used in a given example.

Pre-verbal subjects in Levantine Arabic are actually syntactically ambiguous, because they can be analyzed as in either Subject-Verb or Topic-Verb word order. I take SV word order to show a subject argument applying directly to a verb with an open subject argument, and having a non-topical interpretation. Topic-V word order shows a noun phrase with a topical interpretation applied to a relative-clause like constituent abstracting over the subject agreement by means of the λ-rule:

(66) a. kʊll waḥdi [ḥakeːt ʕan**hæ**] mɪθɪl ɪlʔamar.
every one.fs spoke.1s about-her like the-moon
"Every woman I talked about is [beautiful] like the moon."

b. wala ktæːb ʕɪrɪfɪt miːn kæːn [ɪlli katab**u**].
not.even book knew.1s who was rel wrote-him
"Not one book did I know who wrote it."

(67) a. miːn (ɪlli) bɪddak tɪḥki maʕ**u** hɛllaʔ?
who rel want.2ms 2.speak with-him now
"Who do you want to speak with now?"

b. šu ʔɪlli bɪddak iyy**æː**?
what rel want.2ms obj-him
"What do you want?" "What is it that you want?"

3.6 Negative Sentences in Levantine Arabic

Levantine Arabic has a complex system of negation morphology and, as negation is a crucial part of the following discussion, a brief description is in order.[9]

Sentential negation is expressed according to two general strategies: one uses a proclitic *maː-* which is generally used in clauses headed by verbal categories, and which appears at the left edge of the what can roughly be described as the "clausal nucleus," but following topicalized elements. The other uses independent morphemes, including the negative auxiliary *mıš* (or *mu* in Syrian), or the *pronouns of negation.*

The first, *maː-*, is generally "promiscuous" with regard to the kinds of words it can attach to, suggesting that it is a *special clitic* in the terminology of Zwicky and Pullum (1983):

(68) a. *Finite Verb*:

ʔımbeːriḥ filleːl **ma-ʕirift** anæːm.
yesterday in-the-night not-knew.1s sleep.1s
"Last night I wasn't able to sleep."

b. *Auxiliary*:

tabʕan, **makæːn** fiː ʔaiy ʕilaːǧ ılha.
naturally not-was exist any treatment to-her
"Of course, there was no way to treat her."

c. *Pseudo-Verb*:

maʕindi iši mʊmkın ɛḥki ʕannu.
not-at-me thing possible speak.1s2 about-him
"I don't have anything I can talk about."

d. *Indefinite Pronoun*:

[9]For detailed descriptions of negation morphology in Levantine Arabic as well as in other dialects, see Blau (1960), Cowell (1964), Woidich (1968), Harrell (2004, 2006), Harrell and Sobelman (2004), Awwad (1987), Eid (1991, 1993), Mitchell and al Hassan (1994), Mohamad and Ouhalla (1995), Benmamoun (1997, 2000), Mohammad (1998, 2000), Al-Tamari (2001), Ouhalla (2002), Hoyt (2007a).

ɪlli šʊfnaː **maḥada** šæːfu.
rel saw.1s2-cl not-one-neg saw-him
"What we saw, no one has seen [it]."

e. *Existential Particle*:

maːfi ḥada ʔɪsmu biḥarf ɪssiːn.
not-exist one.ms name-cl with-letter the-s
"There isn't anyone whose name has an 's'."

f. *Adverb*:

yaʕni, **maʕʊmr** šaddatni ḳuṣṣa miθl ɪlḳuṣṣa hæːði.
mean not-ever affected.3fs-me story.fs like the-story.fs this.fs
"I mean, never has a story affected me like this story."

In some Levantine varieties, such as Palestinian, Jordanian, and rural dialects spoken in Lebanon and Syria, *maː-* can be augmented with a enclitic *-š* provided that (i) the host is a word-sized constituent, and (ii) the host contains a morpheme expressing person features (Eid, 1993; Awad, 1998; Mohammad, 1998; Hoyt, 2007a). This may be a main verb (69a), an auxiliary verb (69b), a preposition hosting a pronoun clitic (69c), or one of a small set of adverbial particles that include a pronominal morpheme (69d-69f):

(69) a. ʔinta, **ma**nɪmtɪ**š** ɪmbeːrɪḥ?
you not-slept.1s2-neg yesterday
"Didn't you sleep yesterday?"

b. **ma**kʊnt**iš** aʕrɪf ʕannu ʔiši.
not-was.1s2-neg know.1s2 about-cl thing
"I didn't know a thing about him."

c. **ma**ʕɪndiː**š** waḳt firaːɣ.
not-at-me-neg time empty
"I have no spare time."

d. **ma**fiː**š** ʕɪndi ʔamɪl biʔaiy ʔiši.
not-exist-neg at-me hope in-any thing

"I have no hope in anything."

e. **ma**ʕumri:**š** sawe:thæ.
not-age-me-neg made.1s2-her
"I have never made it."

f. **ma**ḥada:**š** kæ:n yɪʕrɪf fi:na.
not-one.ms-neg was know in-cl.1p
"No one would recognize us."

In the dialects that use *-š*, *ma:-* can be omitted from stems that can host *-š* and that begin with a labial obstruent. These are verbs in the so-called b-imperfect (70a),[10] the pseudo-verb *bidd-* "want" (70b), the prepositions *bi* "in, with (instrumental)" *fi:* "in," *maʕ* "with (comitative)" and *mɪn* "from"; and the existential particle *fi:* (70e):[11]

(70) a. ʔaṣlan ʔana (ma-) **baḥɪbbiš** ašrab iši ʔɪla bɪzzağæ:ğa.
start I not- ind-like.1s2-neg drink.1s2 thing except with-the-glass
"First of all, I only like to drink from a glass."

b. (ma-) **bɪddi:š** aʕmɪl iši.
not want-me-neg do.1s2 thing
"I don't want to do anything."

c. ʔana (ma-) maʕi:**š** maṣa:ri.
I not with-me-neg money
"I have no money with me."

d. hæzzɛlami, (ma-) mɪnnu:**š** faydɛ.
this-fellow not from-him-neg use
"This guy, he is of no use."

e. yaʕni, (ma-) **fi:š** iši bɪla:š.
mean not exist-neg thing without-thing
"I mean, nothing is for free."

[10]These are verb in the imperfect stem prefixed with the clitic *b-* which indicates indicative mood, as well as other aspectual nuances (c.f. Feghali, 1928; Blau, 1960; Cowell, 1964; Mitchell and al Hassan, 1994; Brustad, 2000).

[11]There are additional kinds of contexts that allow "ma-drop," including negative imperatives (e.g. *tɪḳi:š!* "don't talk!").

The *-š* clitic can also attach to various negation compounds, including the "negative pronouns" and *maḥada:* "no one":

(71) a. ilḥʊbb, **mahu:š** bɪlkɪlmi, hu bɪlfɪʕɪl.
the-love.ms not-he-neg in-the-word, he in-the-deed
"Love is not a matter of saying, it's a matter of doing."

b. ʔana **mani:š** ša:yɪf iši ɣa:lɪṭ bɪʔaiy tawḳi:ʕ mɪnhʊm.
I not-me-neg see.actpart.ms thing wrong in-any entry from-them.mp
"I haven't seen anything wrong in any entry from them."

c. **maḥada:š** bɪḳdar yɪḳi maʕu.
not-one.ms-neg ind-be.able speak with-him
"No one is able to speak with him."

Non-verbal predicates such as predicate adjectives, predicate nominals, verb participles, and prepositional phrases are negated with *negative auxiliaries*, which include the negative pronouns and the negative copula *miš*, which has the variants *maš*, *muš* (c.f. Blau, 1960) and *mu* in dialects that do not use the *-š* (c.f. Cowell, 1964):[12]

(72) a. (ʔana) mani:š ḳa:dɪr aḳʊllak iši.
I not-me-neg be.able.actpart.ms say.1s2-to-cl.2ms thing
"I'm not able to tell you anything."

b. laʔ, ha:ða mɪš mʊmkɪn.
no that not possible
"No, that's not possible."

c. ʔana **mɪš** ustæ:z.
I not professor.
"I am not a professor." (Palestinian, al-Quds/Jerusalem)

d. ʔana **mu** žuʕæ:n.
I not hungry

[12] In some regional varieties of Levantine Arabic (such as West Bank Rural Palestian: c.f Blau 1960), variant forms *ma:š* and *mʊš* are also used. Use of these appears to correlate with the gender of the predicate: *mʊš* with masculine predicates, and *mæš* with feminine.

"I'm not hungry." (Syrian, Damascus)

e. ʔani **mɪš** bɪlbeːt.
I not in-the-house
"I'm not at home." (Jordanian, Irbid)

The negative copula can also be used to negate the ʕ*am*-progressive (in varieties that have it) and the future. In this capacity it alternates with the *ma-* clitic:

(73) a. **mɪš** raḥ ɛḥki wala kɪlmi.
not fut 1s.say not.even word
"I'm not going to say a single word."

b. **ma**raḥ ɛḥki wala kɪlmi.
not-fut 1s.say not.even word
"I'm not going to say a single word."

(74) a. **mu** ʕamɛḥki ʕala ḥada muʕayyɪn.
not prog-1s.speak about one specific
"I'm not talking about anyone specific."

b. bɛss ʔana **ma**ʕamɛḥki ʕala ḥada.
but I not-prog-1s.speak about one
"...but I'm not talking about anyone."

The use of *mɪš* with the future and the progressive is likely a residuum of the etymological source of the future and progressive particles: the future marker *raḥ* is derived from *raːyɪḥ* "going," the active participle of *raːḥ-yruːḥ*, which is a non-finite form requiring negation with *mɪš*:

(75) a. ʔana **mɪš** raːyɪḥ ʕalbeːt.
I not going to-the-house
"I'm not going home."

b. * ʔana **ma**raːyɪḥ ʕalbeːt.
I not-going to-the-house

Likewise, the progressive prefix *ʕam-* is derived from the stem *ʕammæːl* (*ʕammæːla* fem.) "doing," which is a nominal form. *ʕammæːl* can also be negated with either *mɪš* or *ma-*:

(76) a. ʔana **ʕammæːla** ʔɛḥki fi nafs ɪlfɪkra.
I doing.fs 1s.speak in same the-thought
"I'm talking about the same thought."

b. wałłaːhi **mu** ʕammæːl ɛḥki heːk.
by-God not doing 1s.speak this
"By God, I'm not talking this [way]."

c. ʔana **ma**ʕammæːl ɛḥki hælḥæːki.
I not-doing 1s.speak this-the-talk
"I'm not talking this talk."

Another use that *mɪš* has is to express meta-linguistic negation:

(77) a. **mɪš** ɪnni bɪddi ʔɛḥki ʕan banæːt baladi ...
not that-I want.1s 1s.speak about girls country-my
"It's not that I want to talk about the girls of my country..."

3.6.1 The Pronouns of Negation

The so-called "pronouns-of-negation" are another kind of negative auxiliary that are similar to *mɪš* in usage, but which express more emphasis or polarity contrast. The pronouns of negation are compounds, consisting of a pronoun form prefixed with *maː-* clitic, or, in Syrian varieties, the dative clitic *l-* hosting a pronoun clitic and prefixed with *maː-* (3.3):

Based on native speaker intuitions as well as on observed data, the use of a pronoun-of-negation instead of *mɪš* is like the contrast between English "I don't" and "I DON'T":

(78) a. ʔana **mɪš** zaʕlæːn.
I not angry
"I'm not angry."

		Singular	Plural
1st		**ma:ni** / **mani:š** (Syr. **ma:li**)	**ma:ḥna** / **maḥna:š** (Syr. **ma:lna**)
2nd	Masc.	**ma:nta** / **manta:š** (Syr. **malak**)	**ma:ntu** / **mantu:š** (Syr. **malkum**)
	Fem.	**ma:nti** / **manti:š** (Syr. **ma:lik**)	**ma:ntu** / **mantu:š** (Syr. **malkum**)
3rd	Masc.	**ma:hu** / **mahu:š** (Syr. **ma:lu**)	**ma:hum** / **mahumš** (Syr. **ma:lhum**)
	Fem.	**ma:hæ** / **mahæ:š** (Syr. **ma:lhæ**)	

Table 3.3: Pronouns of Negation

b. ʔana **mani:š** zaʕlæːn.
I not-I-neg angry
"I'm NOT angry."

c. wałłaːhi **ma:ni** zaʕlæːn.
by-God not-I angry
"I swear I'm NOT angry."

In order to assign category types for the negative auxiliaries, types have to be assumed for non-verbal predicates. Present-tense sentences with non-verbal predicates lack a copula, so nouns, adjectives, and prepositions all need type assignments like $\mathsf{s}_{\mathsf{tense:pres}}\backslash\mathsf{np}$ that are functions returning sentences in the present tense. The negative auxiliaries can then be assigned types that look for non-verbal predicates and return the same. In addition, the negative pronouns allow pro-drop (Awwad, 1987; Eid, 1993) and therefore are specified as returning clauses in the indicative mood to feed the pro-drop rule above:

(79) **mɪš** , **muš** , **maš** $\vdash (\mathsf{s}_{\mathsf{tense:pres}}\backslash\mathsf{np})/(\mathsf{s}_{\mathsf{tense:pres}}\backslash\mathsf{np}) : \lambda P_{ed}.\lambda x.\neg Px$

(80) **ma-ni:-š** $\vdash (\mathsf{s}_{\mathsf{tense:pres,mood:indic}})/(\mathsf{s}_{\mathsf{tense:pres}}\backslash\mathsf{np}) : \lambda Q_{ed}.\ \neg\,[\,i \mid Qi,\ pro'i(speaker')]$

The *maː-* negation clitic is assigned a type which looks for an s category marked with a mood feature as its argument. The *-š* clitic is assigned a type which looks for a preceding s that is specified with a person feature. Also, to account for the possibility of *maː-* being

dropped from labial-initial stems, I assume a "labial" feature which is specified on stems beginning with labial obstruents:

(81) a. **ma:** - "not" $\vdash \mathsf{s}_{\mathsf{lab}}/\mathsf{s} : \lambda p_d.\, \neg p$

b. **bɪddi** - "I want" $\vdash \mathsf{s}_{\mathsf{lab}}/(\mathsf{s}_{\mathsf{imperf}} \backslash \mathsf{np}_{1\mathsf{s}})$:
$\lambda P_{ed}.[\, ei \mid pro'i(speaker'),\ want'pi,\ p = Pi]$

c. **-š** $\vdash \mathsf{s} \backslash \mathsf{s}_{\mathsf{lab,pers,neg}} : \lambda q_d.q$

In order to account for the restriction that requires -*š* to combine with word-sized constituents, I augment Baldridge's (2002) modalities with additional modalities that distinguish word-sized functors from complex functors derived by application of the combinatory rules: the ∘-modality and the •-modality, where the ∘ is more restrictive and allows composition into word-sized constituents (i.e., when a primary functor is marked with ∘, then the secondary functor must also be marked with ∘). The • is less restrictive and allows composition with both word-sized and complex constituents (c.f. Bozsahin, 2002).

Lastly, to force -*š* to appear only towards the left edge of finite clause, -*š* is constrained to combine with s-categories specified with an aspect feature, since morphological aspect is the feature that distinguishes finite from non-finite categories. The category assignment for -*š* is therefore as follows (the × and ∘ modalities are represented together with the ⊗ symbol):

(82) **-š** $\vdash \mathsf{s} \backslash_{\otimes} \mathsf{s}_{\mathsf{aspect}:\alpha,\mathsf{lab}}$

To illustrate, the following is a derivation for (69a) above:

(83)

ma−	**nimt**	**−iš**	**Imbe:riḥ**
$\mathsf{s}_{\mathsf{lab}}/\mathsf{s} : \lambda p.\neg p$	$\mathsf{s}_{\mathsf{aspect:perf}} : slept'(pro'_{1s}\ x)$	$\mathsf{s}_{\mathsf{aspect}:\alpha} \backslash_{\otimes} \mathsf{s}_{\mathsf{aspect}:\alpha,\mathsf{lab}}$	$\mathsf{s} \backslash \mathsf{s} : \lambda q.[yesterday'(q)$
	$\mathsf{s}_{\mathsf{lab}} : \neg(slept'(pro'_{1s}\ x))$ (>)		
	$\mathsf{s}_{\mathsf{aspect:perf}} : \neg(slept'(pro'_{1s}\ x))$ (<)		
	$\mathsf{s}_{\mathsf{aspect:perf}} : yesterday'(\neg(slept'(pro'_{1s}\ x)))$ (<)		

Additional refinements to the negation types will be given later.

Chapter 4

Levantine Arabic N-Words

4.1 Introduction

In this chapter I present and discuss the meaning of Levantine Arabic n-words, based on the following definitions for *negative expression*, *n-word*, and *negative concord* (c.f. Giannakidou, 2000, 2002; Watanabe, 2004):

(1) i. *Negative expression*: An expression that expresses predicate negation.

ii. *N-word*: A word that can be used to express negation in a sentence fragment.

iii. *Negative concord*: The failure of one or more n-words to express negation *distinctly* when in syntagm with another negative expression.

I make a distinction in usage between *express* and *contribute*. When I say that a word *expresses* negative meaning, I mean this in a descriptive sense: I observe that use of the word in an utterance correlates with the presence of a negation operator in the interpretation of the utterance, without making any theoretical claims about where the negation operator comes from. If I say that a word *contributes* negative meaning, I am making a theoretical claim, namely that the word has a negation operator as part of its lexical meaning assignment. I therefore take it as uncontroversial that n-words *express* negation. This

distinction is useful in that it provides a way to talk about data in which, intuitively, negative concord occurs but without making a theoretical commitment to a particular theoretical analysis.

Based on a close look at the various usages of these words in negative and negative-concord sentences, I claim that negative concord in Levantine Arabic involves two phenemona which are related but distinct. One is the *licensing requirement*, and the other the *concord effect*:

(2) a. *Licensing Requirement*: The predicate of which an n-word is a dependent must be marked with negation.

b. *Concord Effect*: N-words fail to contribute negation *distinctly* to the interpretation of a negative predicate when the meaning of the n-words and the meaning of the negation are mutually entailing.

As I show, while n-words that satisfy the licensing requirement will have concordant interpretations, not all instances of negative concord arise because of the licensing requirement, hence the distinction.

Furthermore, I show that different classes of n-words must be licensed for different reasons. In the case of scalar-*wala*, I argue that the licensing requirement is a function of the interpretation, and in particular that the predicate upon which a *wala*-phrase depends must be marked with negation when the interpretation of a *wala*-phrase would otherwise contradict the meaning of the predicate. I refer to this as the *Tovena-Herburger Generalization*, because, to the best of my knowledge, it has only been noted by Tovena (1996) and Herburger (1998, 2000, 2001):

Generalization 4.1. *Tovena-Herburger Generalization*: A predicate P upon which a *wala*-phrase N depends must be marked with negation if the interpretation of N would otherwise entail a contradiction with the interpretation of P.

Accordingly, negative concord as it involves *wala*-phrases is essentially semantic. I present detailed argumentation in Ch.5 in support of this claim. In contrast, I argue that the licens-

ing requirement on the licensing of *never*-words is not captured by the Tovena-Herburger Generalization, and instead can be described in terms of a syntactic licensing requirement.

The chapter is organized as follows: 4.1.2 (p.107) presents the different kinds of n-words found in Levantine Arabic, and organizes them into three classes. These include the *negative scalar focus particle* 4.2, the *never-words* 4.3, and the *negative minimizers* (4.4, p.170).

4.1.1 What Is an N-Word?

Before proceeding, it will be useful to briefly touch on the usage of the term *n-word* and its application to expressions in Levantine Arabic. According to the definitions in (1), an n-word is a word that expresses predicate negation when used as a fragment answer. An objection I have heard is that n-words are necessarily words which contain negation morphemes, and, accordingly, that words such as the *never*-word *ʔɛbadan* (found in Levantine as well as most other forms of Arabic) or the Maghrebi Arabic *ḥətta* (c.f. Harrell, 1962, 1965; Harrell and Sobelman, 1966; Marçais, 1977; Benmamoun, 1995, 1997; Ouhalla, 1997; Souag, 2006) cannot be n-words, as they do not contain negation morphemes. Instead, the claim might be that these should be referred to as *negative polarity items*.[1]

What the objection seems to assume is that an n-word must either contain a morpheme that is independently used in the language to express negation (such as is the case with Levantine *wala*, which contains *la* "no"), or that it must include the etymological reflex of a negation morpheme that was present in an earlier stage of the language, such as the [n] in English *never*, which is a reflex of the clause-initial negation morpheme *ne* used in Anglo-Saxon English and its precursors. Words that lack either would then have to be called negative polarity items which lack inherent negative meaning.

Examples of words in Arabic that satisfy the definition in (1i) but which lack a morpheme that is either used as a negation morpheme elsewhere in the language, or that

[1] See, for example, Cantarino (1975), Badawi et al. (2004) and Mughazy (2003) for *ʔɛbadan* and Benmamoun (1995, 1997), Ouhalla (1997) and Souag (2006) for Maghrebi *ḥətta*.

have a historical root as a negation morpheme include, in Levantine Arabic, the *never*-words *ʔɛbadan* and *bɪlmarra* (both glossed as "never, not at all"), or, in Maghrebi Arabic, *ḥətta* (glossed here as "not even"), from *ḥatta* "until, even."

According to the objection, these words should not be treated as n-words, but rather as words with negative polarity-sensitive interpretations, such as the following:

(3) a. *ḥada* "one, someone, anyone"

b. *iši* (Palestinian, Jordanian), *ši:* (Syrian) "thing, something, anything"

c. *ʕʊmr* "ever"

d. *ʕad*, *rağaʕ-yɪrğaʕ*, *ʕa:wad-yʕa:wid* "again, anymore"

e. *yɪrfaʕ laḥada ɣaššɛ* "lift a match for someone" (i.e., "lift a finger")

However, the objection fails to take into account the fact that words lose and acquire meanings as a part of historical change. In particular, it fails to take into account Jespersen's Cycle (Jespersen, 1917), the observation that, in language after language, words which begin as polarity sensitive expressions take on the role of expressing negation.

Indeed, many n-words do include a morpheme that is transparently derived from or related to a negation morpheme, such as is the case with n-words in English (4) and other European languages such as Spanish (5):

(4) a. Eng. ***no****thing* ⇐ OE ***ne*** *ān þinga* "not one matter"

b. Eng. ***n****ever* ⇐ OE ***ne*** *æfre* "not ever"

c. Eng. ***n****one* ⇐ OE ***ne*** *ān* "not one"

d. Eng. ***n****ought* ⇐ OE ***ne*** *awiçt* "not ever a thing" ⇐ *ā wiçt* "ever a thing"

(5) a. Spa., Rom. ***ni***, Ital. ***ne*** "nor, not even" ⇐ Lat. ***ne****c*, ***ne****que* ⇐ ***ne****-que* "and not, nor, not even"

b. Spa. ***n****unca* ⇐ Lat. ***n****unquam* ⇐ ***ne****c unquam* "not ever"

c. Spa. ***ni****ngún* ⇐ Lat. ***ne****c unus* "not one"

However, there are also n-words that come from a non-negative etymological source, but come to contain a negation morpheme by virtue of folk etymology. This is the case with Spanish *nada* "nothing" and *nadie* "no one," both paradigmatic n-words, but which share an initial [n] with the negation morpheme *no* only by historical coincidence (Jespersen 1917; Espinal 2000b, Penny 2002, p.30):

(6) i. Spa. ***n**ada* ⇐ Lat. *(res) nata* "thing born"

ii. Spa. ***n**adie* ⇐ Lat. *nati* "[person] born"

In many other cases, however, n-words develop from indefinite or interrogative pronouns or from indefinite nouns expressing minimal values to morphemes expressing negation, as described by Jespersen:

(7) a. French *rien*, Catalan *res* "nothing" ⇐ Lat. *res* "thing"

b. Catalan *cap* "no one" ⇐ Lat. *caput* "head"

c. Spanish *jamás*, French *jamais*, Italian *mai* "never" ⇐ Lat. (*iam*) *magis* "(further) more"

Non-negative expressions develop into sentential negation morphemes proper, rather than just n-words:

(8) a. French *pas* "not" ⇐ *pas* "step"

b. Levantine and Egyptian Arabic *-š* "not" ⇐ *šeiy* "thing" (change in progress)

c. Welsh *ðim* "not" ⇐ Mid. Welsh *dim* "thing"

d. Scandanavian *ekki* or *ikki* "not", German *kein-* "no" ⇐ Proto-Germ. **wixt* "thing, person"

Similarly, negative expressions can lose their negative meaning:

(9) a. Levantine Arabic *lasbɪdd* "necessarily, must" ⇐ Old Arabic *leysa bʊdd* "there is no choice," containing *laysa* "is not, there is no";

b. Ancient Greek *ou* "not" ⇒ *ou-te* "not even" ⇒ Demotic Greek *oute* "even" (c.f. Giannakidou, 2007)

The point is that negative meaning comes about through processes of semantic and morphological change in the history of a language. Hence, the issue of whether or not a word contains a reflex of a historical negation morpheme is orthogonal for the purposes of determining if it is an n-word in the synchronic grammar according to the definitions above. Hence, claiming the Levantine *ʔɛbadan* or *bɪlmarra* or Maghrebi *ḥətta* are n-words is no less plausible than is claiming that French *pas* or Scandinavian *ɛkki* are negation morphemes.

4.1.2 Different Kinds of N-Words

The following kinds of words satisfy the definition of n-word in Levantine Arabic:

(10) a. Negative scalar focus particle: *wala* "not even one, not a single, not the least"

b. *Never*-words: *ʔabadan*, *bilmarra*, *min marra* "never, ever, (not) at all, (not) in the least"

c. Negative minimizers: *hawa* "nothing" (lit. "air"), *gɛšal* "nothing, not a penny"

I discuss these in turn in the following sections. I will have the most to say about *wala* because *wala*-phrases — phrases modified or headed by *wala* — are typically nominal, and hence can fill more syntactic and semantic functions than do the *never*-words, which are strictly adverbial.

4.2 Negative Scalar Focus Particle

The n-word *wala*, which I gloss variously as "not even one, not a single, not a" is a *negative scalar focus particle* (c.f. Haspelmath, 1997, 223; a.o.), meaning that its interpretation involves comparison with of a set of contextually-specified alternative propositions that are ordered in terms of a scalar model.[2] I refer to it in what follows as "scalar-*wala*."

In terms of its etymology, *wala* is a compound of the conjunction *wa-* "and" with the negation marker *la* "no, not" (pronounced [lɛʔ]). In Classical Arabic and early forms of

[2] C.f. Fauconnier (1975); Kadmon and Landman (1993); Michaelis (1993); Lee and Horn (1994); Lundquist and Jarvella (1994); Israel (1995, 1996, 2001); Krifka (1995a); Rullmann (1996, 1997); Tovena and Jayez (1999); Lahiri (1998); Chierchia (2004); Mari and Tovena (2006); Aranovich (2007); Giannakidou (2007).

the dialects (c.f. Blau, 1967), the *la*-particle was itself ambiguous between three uses: (i) expressing present tense verbal negation; (ii) expressing existential or categorical negation (Arabic *nafi lǧins* "negation of the kind"), as in the Mulsim credo *lɛ ʔilaːha ʔila ʔaɬɬaːh* "there is no god but The God"; and (iii) negative imperatives. Of these, (i) and (ii) have largely been reduced to formulaic borrowings from Standard Arabic, leaving negative imperatives (e.g. *lɛʔ tɪḥ̣ki* "don't speak!") as the primary productive use for *lɛʔ*.

This kind of etymology, the derivation of a negative scalar focus particle from the compounding of a negation with a conjunction, occurs in many languages (c.f. Haspelmath, 1997):

(11) a. Latin ***ne*** "not" + *-que* "and" ⇒***ne****que*, ***ne****c* "nor, not even"

b. Classical Greek ***ou*** "not" + *-te* "and" ⇒***ou****te* "not even" (c.f. Giannakidou, 2007)

c. Hungarian ***is*** "and, also" + ***nem*** "not" ⇒***sem*** "nor, not even" (van Craenenbroeck and Lipták, 2006)

Wala is polysemous, having (at least) the following uses:

(12) a. Negative conjunction: "and not": This is the etymological source, composed of *wa-* "and" + *la* "not," but is still used productively;

b. Negative Disjunction or Additive Particle: "nor": *la*... *wala* "neither... nor," *wala* "nor";

c. Disjunction: "or," found mostly in urban registers;

d. Negative Scalar Focus Particle: "not even, not one";

e. Denial or "Attenuating" *wala*: similar to Spanish *tampoco*, Italian *neppure*, and *either* in colloquial American English (c.f. "You ate my ice cream!" "I didn't either!").

This is genuine polysemy, rather than underspecification, given that the different senses can co-occur within a single sentence. For example, in (13a), conjunction-*wala* precedes scalar-*wala*, while in (13b), scalar-*wala* occurs twice, in two conjuncts joined by disjunction-*wala*:

(13) a. ssama zraʔʔet **wlaː** ʕaːd fiː **wlaː** ɣeːme.
the-sky became-blue.3fs and-not anymore exist not.even cloud
"The sky cleared and there didn't remain even one cloud." (Damascene Arabic: Cowell 1964, 391

b. maʕaːd naṭaʔ **wala** bḥarf **wala** tkallam **wala** kəlmɛ.
not-anymore pronounced not.even with-word nor spoke not.even word
"He neither pronounced even one letter more nor spoke even one word."(Damascene Arabic: Cowell 1964, 391

The following dialogues show additive *wala* co-occurring with scalar-*wala*. Each consists of an antecedent clause A followed by a clause B beginning with additive *wala*, and followed by a use of scalar *wala*:

(14) A: kalimæːt ruːʕa bɛss maqad sɪmɪʕthæ.
words.fp pleasing.fs but not-asp heard.1s-her
"Nice words! But I haven't heard it yet."

B: **wala** ʔana, **wala** marra sɪmɪʕthæ.
nor I not.even once heard.1s-her
"Nor I, I have not even once heard it."

(15) A: šuː mɪšæːn ʔɪmnu ʔana **maː**baʕrɪf **wala** **mʊṭrɪb** mɪn hedoːl.
what because that I not-ind.1s.know not.even performer from these
"What? Because I don't know even one of these performers?"

B: waɬɬaːhi **wala** ʔana mabaʕrɪf **wala** **waːḥad** mɪnnʊn suːs.
by-God nor I not-ind.1s.know not.even one from-them chick
"By God, nor do I not know even one of them."

While rare, examples can be found in which "nor"-*wala* immediately precedes scalar-*wala*, showing the two distinct senses co-occurring:

(16) ʔana **maː**ʕrɪf ḥada **wala** **wala** ḥada byiʕrɪfni.
I not-1s.know one nor not.even one ind.3.know-me
"I don't know anyone nor does even one person know me."

I conjecture that the rarity of such examples may be due to a phonological or morphological dispreference for a double sequence of *wala*.

Disjunction-*wala* is frequently used in sequences, as in the following example, in which *wala ḥada* corresponds to "not anyone," and closing off an extended sequence of additive disjunction phrases "neither my grandfather nor my grandmother nor my mother nor my father nor myself nor you nor anyone":

(17) ilḥaʔiːʔa **la** ǧɛddi **wala** sɪtti **wala** ʔɪmmi **wala** ʔabbi **wala**
the-truth not grandfather-my nor grandmother-my nor mother-my nor father-my nor
ʔana **wala** ʔinta **wala ḥada** fiːna bɪʕrɪf issuʕaːda lmuṭlaqa.
I nor you.ms nor one in-us ind.3.know the-happiness.fs the-total.fs
"The truth is that neither my grandfather, nor my grandmother, nor my mother, nor my father, nor I, nor you, nor any one of us knows complete happiness."

The interpretation of the last disjunct in this example, *wala ḥada* "nor anyone" Nor-*wala* and scalar-*wala* can be distinguished here because the *wala ḥada* constituent does not have a scalar interpretation. Rather, it closes off the class of objects being quantified over (c.f. Mari and Tovena, 2006).

Of all the senses that *wala* has, the two that are the most difficult to distinguish are scalar-*wala* and denial-*wala*. The primary difference between them is that denial-*wala* does not have a scalar presupposition, but rather presupposes a proposition which it then *attenuates* (Schwenter, 2003; Schwenter and Waltereit, 2009). For example, the discourse in (18) occurs in a discussion of the health benefits of eating and indeed chopping onions.

(18) ṣaḥḥ ʔana baqšar baṣal laːχuy lɛmmin yuṭlub mɪnni, [bɛss **wala**
true I ind.1s.slice onion to-brother-my when 3.request from-me but not
baḥɪbbu, ḥatta riːḥɪtu waʔakalu].
ind.1s.like-him even smell-his and-eating-his
"True, I slice onion for my brother when he asks me to, but I don't [even] like it, even its smell and eating it."

Up to the point at which the writer contributes (18), the discussion has consisted of a list of contributions by other participants talking about how wonderful onions are. The speaker then leads with a concessive clause allowing that she will slice onions for her brother as a snack, but then denies the expectation arising from the context that she likes them.

A similar example is in (19), in which a speaker first concedes that he knows there is a distinction between cameras with electronic shutters and those with mechanical shutters, but then denies the expectation that he knows of what the difference consists:

(19) kʊnt ʔaʕɪɾf ɪmnu fiː ɣaːlɪq ɪliːktroːni wɣaːlɪq miːkæːniːki
was.1s 1s.know that exist shutter electronic and-shutter mechanical

[bɛss **wala kʊnt** adri lfarq beːnhʊm].
but not was.1s 1s.know the-difference between-them.mp

"I knew that there's an electronic shutter and a mechanical shutter, but I didn't [even] know the difference between them."

Again, the use of *wala* here seems to deny a presupposition or inference, rather than to range over scalar alternatives. In neither (18) nor (19) does *wala* seem to have a scalar presupposition: neither presupposes alternatives ordered in terms of, for example, likelihood, or cardinality values.

Nonetheless, there are examples in which the uses of denial-*wala* and scalar-*wala* can overlap in interpretation, in examples in which denial-*wala* scopes over a clause containing a singular indefinite noun phrase:

(20) a. **wala** basawwi **iši**.
not ind.1s.do thing
"I won't even do anything," "I won't even do a single thing."

b. **wala** fiː **zɛlami** beːnku.
not exist man between-you.mp
"There isn't even a real man among you!" "There isn't a single real man among you!"

I conclude therefore that there are distinct, homophonous variants of *wala*, several of which contribute negative meaning, but which have different presupposition or background meanings.

It is also possible for scalar-*wala* to be iterated, again for particularly over-the-top degrees of emphasis:

(21) a. χɪlæːl ɪlʔʊsbuʕeːn maːṭɪlʕɪt **wala wala wala marra**.
during the-week.dl not-went.out.1s not.even not.even not.even once
"Over the past two weeks I haven't gone out even even even once."

b. maḥadaːš yɪsʔalni **wala wala wala** iši mɪn ɪlli ʔʊltu.
not-one-neg 3.ask-me not.even not.even not.even thing from rel said.1s-him
"No one asks me even even even one thing from what I said."

c. ʔana maːʕɪrɪft **wala wala waːḥad**.
I not-knew.1s not.even not.even one
"I didn't recognize even even one of them."

d. bliːz bliːz ɪfiːdiːni ʔana mæːšiyya ʔæːχɪr ɪššahr umu ʕaːrɪfa
please please help.imp.fs-me I going.fs last the-month and-not knowing.fs
wala wala wala ši: ʕan halmɛdiːni.
not.even not.even not.even thing about this-city
"Please please help me! I am going at the end of the month, and I don't know even even even one thing about this city."

In examples like this, I assume that the successive iterations of wala are not interpreted compositionally, but rather as reduplication or copying of the single word, and having one interpretation.

I turn now to the interpretation of scalar-*wala.*

4.2.1 Scalar-*Wala*

Based on native speaker intuitions as well as on descriptions in published sources, *wala* is interpreted as a negative scalar particle, comparable to English *not even*, *not even one*, or

not a single (Schmidt and Kahle, 1918, 1930; Blau, 1960; Cowell, 1964; Elihay, 2007).

For example, Schmidt and Kahle (1918, 1930) gloss *wala* as *auch nicht (ein)* "not even (one)" or *kein einziger* "not a single":

(22) a. mantafak **wala** b**waḥadɛ**.
not-benefited not.even with-one.fs
"He had no use for even one." ("auch nicht von einem")

b. wala leːlɛ yfuthɪm ačl ɪğğæːğ.
not.even night 3.pass-him food the-chicken
"Not one night would he pass them a chicken dish." ("in keiner einzigen Nacht")

Woidich (1968) notes that in Egyptian Arabic, the use of *wala* has an "expressive" function that distinguishes it from other negative expressions such as *mahadd* "no one" (cognate withe Levantine *maḥada*) as in (23):

(23) a. **mahaddiš** fiːkum χad bæːlu.
not-one in-you took mind-his
"Not one of you paid attention." ("keiner von euch")

b. ɪzzay wala waːh̆ɪd fiːna xad bæːlu?
how not.even one in-us took mind-his
"How is it that not even one of us paid mind?" ("nur kein einziger von use")

Based on Woidich's glosses, the "expressive function" that he refers to is a negative scalar focus interpretation.

Likewise, (Cowell, 1964, 390), in his grammar of Syrian Arabic, notes that "*wlaː* is used with the 'emphatic *w*-' in the sense of 'not even': *wlaː* (or *wala*)":

(24) mafiː wlaː nətfɛt xəbəz bəlbeːt.
not-exist not.even scrap bread in-the-house
"There's not even a piece of bread in the house."

On this basis, I gloss *wala* as "(not) even one" or "(not) a single."

The negative force associated with the interpretation of scalar *wala* stands in contrast to the scalar focus particle *ḥɪtta* "even" (Standard Arabic *ḥatta*) which closely resembles English *even* in terms of its usage.[3] A scalar focus particle is a word whose interpretation *associates* with a second word pronounced with focus intonation. It presupposes a set of alternative propositions varying over a set of objects corresponding to the type of the focused word, as well as a scalar ordering between these alternatives. The asserted meaning of the particle-focus pair is understood to be the minimum element in this ordering.[4]

For example, English *even* has been treated as presupposing a set of alternatives varying along a likelihood scale, as in the following example (c.f. Rooth, 1992; Wilkenson, 1993; Lee and Horn, 1994; Israel, 1995; Rullmann, 1996; Lahiri, 1998; Horn, 2005; Giannakidou, 2007):

(25) ḥɪtta fariːd ʔɛkal šwaiyyɪt mʊχχ.
even Fareed ate little.fs brains
"Even Fareed ate some brains."

i. Fareed ate some brains.

ii. Someone other than Fareed ate some brains.

iii. For all x such that x ate some brains, the likelihood that x ate some brains is greater than the likelihood that Fareed ate some brains.

Borrowing the standard analysis of English *even*, I assume that *ḥɪtta* triggers a set of alternatives ranging over the type of its associate, with the alternatives ordered on a likelihood scale. For example, (26a) presupposes a set of alternative propositions varying over individuals that the speaker was willing to talk to (26b), and implies that the alternative

[3] In addition to its use as a scalar focus particle, *ḥɪtta* is also used to mean "as far as" *sæːfart ḥɪtta ššæːm* "I traveled as far as Damascus" (this is the etymological source), as well as "in order to": *ʔiǧiːt ḥɪtta ʔašuːfak* "I came in order to see you."

[4] *Even* has also been referred to as a "scalar additive particle." For theories of the semantics of focus, see Rooth (1985, 1992); Krifka (1991, 1992, 2001, 2006); Wilkenson (1993); Büring (1997); Rullmann (1997); Schwarzschild (1999); Kadmon (2000); Guerzoni (2003, 2004); Giannakidou (2007); Beaver and Clark (2008); a.m.o.

in which he or she speaks to family is more likely than the others (26c). The sentence then asserts that not (even) this most likely alternative is true, contrary to expectation.

(26) a. makʊnt aḥɪbb aḥki **ḥɪtta** maʕ ʔahli wzoːǧti.
not-was.1s 1s.like 1s.speak even with family-my and-spouse-my
"I didn't like to talk even with my family and my husband."

b. {I wanted to speak with x | $x \in C_e$}

c. I wanted to speak with my wife $>_{likely}$ I wanted to speak with my parents $>_{likely}$ I wanted to speak with my sibling $>_{likely}$ I wanted to speak with my friends $>_{likely}$ ...

Similarly, (27a) presupposes alternatives varying over individuals who have seen the film in question (27b), and implies that the most likely alternative is the one in which the speaker has seen the film (27c), and asserts that even this alternative is false:

(27) a. wałłaːhi **ḥɪtta** ʔana mašʊft hælfɪlɪm.
by-God even I not-saw.1s this-film
"By God, even I didn't see this film."

b. {x sees this film | $x \in C_e$}

c. I see this film > you see this film > ...

Returning to *wala*, it is like *ḥɪtta* in that it *associates* with an expression that has a scalar interpretation. However, it differs from *ḥɪtta* and from English *even* in two ways: first, it expresses negation, hence the gloss "not even." Second, it imposes a more specific scalar presupposition than does *ḥɪtta* or *even*. In particular, its interpretation presupposes alternatives ranging over quantity scales, and hence over the natural numbers. This means that the interpretation of scalar-*wala* within the context of a sentence p involves comparison of alternative propositions differing from p only in terms of the cardinality of one of their NP arguments. The sentence then asserts that p is false as well all scalar alternatives to p

(I refer to the negation of the scalar alternatives as the *strengthened meaning* (c.f. Krifka, 1995b; Lahiri, 1998; Aranovich, 2007; Giannakidou, 2007)).[5]

This restriction is shown by the fact that *wala* can associate only with singular indefinite noun phrases (28a), and not with dual (28b) or plural nouns (28c):

(28) a. maːfi **wala** **tʊffæːḥa** lyoːm.
not-exist not.even apple the-day
"There isn't even one apple today."

b. * maːfi **wala** **tʊffæːḥteːn** lyoːm
not-exist not.even apples.dual
'There aren't even two apples today."

c. * maːfi **wala** **tʊffæːḥ** lyoːm.
not-exist not.even apples the-day
"There aren't even apples today."

In this respect, *wala* contrasts with the the determiner *ʔaiy* "which, any" which is used both as a question word and as a "quodlibetic" or "arbitrary choice" item (Israel, 1995; Rullmann, 1996; Tovena and Jayez, 1999; Horn, 2005), analogous to English emphatic *any* (Kadmon and Landman, 1993; Lee and Horn, 1994; Krifka, 1995a). Scalar *wala* and *ʔaiy* overlap in their usage to the extent that native speakers are sometimes hard pressed to distinguish the differences in meaning between two sentences that are nearly identical paraphrases, varying only over whether they contain *ʔaiy* (29a) or *wala* (29b). In fact, the two words can be used in tandem to express an extra degree of what native speakers consistently refer to as "emphasis" (Arabic *tɛʔkiːd*; 29c):

(29) a. maːfi **ʔaiy** kɪlmɪt šʊkr.
not.exist which word thanks
"There isn't any word of thanks."

[5] A variety of proposals are in the literature. Krifka (1995b) builds the negation of scalar alternatives into a *scalar.assert* operator, and suggests that in a "more refined theory" this entailment would be a conventional implicature. Lahiri (1998) derives the negation of scalar alternatives by means of the Law of Contraposition. Aranovich (2007) derives it by stipulating a condition on the interpretation of the Spanish negative scalar particle *ni*.

b. maːfi **wala** kɪlmɪt šʊkr.
not.exist not.even word thanks
"There isn't even one word of thanks."

c. maːfi **wala** **ʔaiy** kɪlmɪt šʊkr.
not.exist not.even which word thanks
"There isn't EVEN ONE word of thanks."

However, unlike *wala*, *ʔaiy* does not trigger scalar alternatives, but rather picks out and compares arbitrary witnesses to the NP denotation (a use that Horn 2005 refers to as *quodlibetic*; c.f. Israel 1995; Rullmann 1996; Horn 2005; Jayez and Tovena 2005). This means that *ʔaiy*, although it does not refer to a specific individual, is interpreted as ranging over a set of actual referents. This is reflected in the observation that native speakers, when pressed, share an intuition that to use *ʔaiy* implies pointing at different alternatives, while *wala* expresses absolute or categorical negation.[6]

The contrast between *wala* and *ʔaiy* closely resembles one noted by Lahiri (1998) between the Hindi negative polarity items *koi bhii* "anyone" (*koi* "who, someone" + *bhii* "even") and *ek bhii* "even one, a single" based on (*ek* "one" + *bhii* "even"). Lahiri notes that, although *koi bhii* and *ek bhii* are almost equivalent in meaning, there is a subtle difference between them: *ek bhii* can only be used with singular nouns (30), while a wh-NPI such as *koi bhii* can be used with both singular and plural nouns (31).

(30) a. **ek** **bhii** admii is mezko uThaa saktaa hai.
one even man this table-obj lift can.sg be.sg
"Even one person can lift this table." (*ek bhii* + Singular Noun)

b. * **ek** **bhii** tiin log is mezko uThaa sakte haɪN.
one even three people this table-obj lift can.pl be.pl
"Even one three people can lift this table." (*ek bhii* + Plural Noun)

[6]More than one native speaker consultant, while trying to explain how *ʔaiy* differs from *wala*, used a gesture of pointing at a succession of imaginary alternatives.

Also, *koi bhii* and *ek bhii* generate different implicatures: (31a) generates a implicature that one is the minimal cardinality of the set of people sufficient to lift the table, while (31b) generates an implicature that any arbitrary person would be able to lift the table:

(31) a. **koi bhii** tiin log is mezko uThaa sakte haıN.
any three people this table-obj lift can.pl be.pl
"Any three people can lift this table." (*koi bhii* + Plural Noun)

b. **koi bhii** admii is mezko uThaa saktaa hai.
any man this table-obj lift can.sg be.sg
"Anyone can lift this table." (*koi bhii* + Singular Noun)

Lahiri attributes these differences between *koi bhii* and *ek bhii* to a difference in the kinds of alteratives that the two expression trigger. He argues that *ek bhii* introduces alternatives ranging over cardinality predicates ("two, three, four," etc.) taking sum individuals as their domain (c.f. Déprez, 1999, 2000; Espinal, 1999), while *koi bhii* ranges over contextually specified predicates, including cardinality predicates. Lahiri also assumes that that common nouns in Hindi include cardinality predicates in their interpretations. Therefore, the interpretation of *koi bhii* can imply or subsume the interpretation of *ek bhii*, because they both introduce alternatives ranging over the property of being a single man.

The contrast between Levantine *wala* and *ʔaiy* in terms of the kinds of nouns they can associate with directly parallels this. Following Lahiri's analysis, the alternatives introduced by a *wala*-phrase range over cardinalities greater than one, while its satisfaction conditions negate the existence of the common noun interpretation of cardinality one. On the other hand, *ʔaiy*-phrases can be treated as Lahiri treats *koi*-phrases, in introducing unspecified alternatives that at least entail a cardinality of one.

For example, the following dialogue shows a *wala*-phrase *wala tʊffæːḥa* "not one apple" being used to close off a debate about the number of apples that might be available:

(32) (*At the produce stand:*)

Fred: ya qais, ḥaːbb aštriːli šwaiyyɪt tʊffæːḥ.
voc Qais, would-like.1s buy.1s-to-me little apple
"Qais, I'd like to buy some apples."

Qais: ʔana ʔaːsif, ya fariːd, ulæːkɪn mafiː tʊffæːḥ ɪlyoːm.
I sorry.1s voc Fred and-but not-exist apple the-day
"I'm sorry, Fred, but there aren't apples today."

Fred: bɛss bɪddi θalaːθa, ʔarbaʕa, miš ɪkθiːr.
only want.1s three four not many
"I just want three or four, not a lot."

Qais: ya ḥabiːbi, mafišš ʕɪndi **wala** **tʊffæːḥa** ɪlyoːm.
voc dear-cl1s not-exist-neg at-me not.even apple.sg the-day
"My friend, I don't have even a single apple today."

* mafɪšš ʕɪndi **wala** **tʊffæːḥ** ɪlyoːm.
not-exist-neg at-me not.even apple.sg the-day

* mafɪšš ʕɪndi **tʊffæːḥaːt** ɪlyoːm.
not-exist-neg at-me not.even apples.pl the-day

In the dialogue, Fred keeps bringing up the possibility that there might be some minimal number of apples available that Qais might sell him. Qais uses the *wala*-phrase associated with a singular noun phrase *tʊffæːḥa* to negate that even the minimum quantity of apples is available. Paraphrases with a dual (*tʊffæːḥteːn*) or plural (*tʊffæːḥ*) are unacceptable.[7]

As Lahiri assumes to be the case for Hindi, Arabic common nouns can be analyzed as including a cardinality predicate in their interpretation. The selectional restriction to individual-denoting nouns that *wala* imposes on its common noun complement follows directly from this assumption, if *wala* is treated as introducing a singular cardinality predicate as well, or as having its domain restricted to noun interpretations with a cardinality of one. This explains why the interpretations frequently overlap. This is supported by the obser-

[7]The Arabic word *tʊffæːḥ*, is a mass noun, translatable as "apples." The singulative form is derived by addition of the "bound-t" suffix -a^t (*tʊffæːḥa* "an apple"). The dual is derived by the addition of the dual suffix -*eːn* to the singulative stem (*tʊffæːḥteːn* "two apples") with elision of the vowel [a].

vation that *wala* and *ʔaiy* can be used together in the same phrase (with a corresponding increase in the degree of emphasis expressed):

(33) a. maːkalt **wala ʔaiy iši** lyoːm.
not-ate not.even any thing the-day
"I haven't eaten EVEN ONE THING today!"

b. ʔana muː maʕ **wala ʔaiy ḥada** bitaʕliːʔu.
I not with not.even any one in-comment-his
"I'm not with EVEN ONE person in his commentary."

This distinction can also be seen in the comparision of two segments from the film *Rana's Wedding* (Abu-Assad, 2003), in which the dialog is in Palestinian Levantine, and which depicts the use of *wala*-phrases and an *ʔaiy*-phrases in negative sentences. The film is about an 18-year-old Muslim Palestinian woman named Rana, the daughter of a wealthy Jerusalem business man who is relocating to Cairo. He has presented Rana with an ultimatum: if she wishes to stay in Jerusalem, she must get married to one of a list of suitors that he has vetted. Otherwise, she must go to Cairo with him.

However, Rana is in love with a ne'er-do-well actor named Khalil and wishes to marry him. Faced with this dilemma, Rana has procrastinated until the deadline of the ultimatum before trying to suggest to Khalil that they get married. The plot of the film therefore follows Rana's travails as she tries to persuade Khalil to marry her, and then to persuade her father to accept Khalil as a suitor.

At one stage in the plot, Rana has persuaded Khalil to get married, and they have enlisted the assistance of a judge to help make the case to her father. The following scene shows the judge asking Rana about her father's list, and why she doesn't just do what her father says and choose one of the suitors that her father has vetted:

(34) J: šu mawduːʕ hællista haiy, yaʕni?
what matter this-list.fs this.fs meaning
"So, what's business of this list?"

R: ʔabuːy ʔaʕṭaːni lista lalʕursæːn ɪlli ṭalabuːni.
father-my gave-to-me list to-the-grooms rel requested.mp-me

ʔalli ʔɪza bɪddɪk taǧawwɪzi, læːzɪm waːḥad mɪn hæːðoːl.
said-to-me if want.2fs 2.marry.fs must one from these

"My father gave me a list of the suitors who have asked for me. He said 'If you want to get married, it has to be one of these'."

J: oː! … hmm … hæːdoːl næːs mʊḥtarɪmiːn filbalad!
[reading] these people respected.mp in-the-town

muhæːmi, muhɛndɪs, doktoːr, rʊǧǧæːl ʕʊmmæːl.
lawyer engineer doctor men business

"Hmm…these are respected people in town. Lawyer, engineer, doctor, business men."

R: bɛss ana bɪddiːš **wala waːḥad** mɪnhʊm.
but I want.1s-neg not.even one from-them
"But I don't want even one of them."

In the final line of the segment, Rana uses a *wala*-phrase in a sentence in which she categorically rejects the idea of marrying any of a list of potential suitors.

Interviewees were asked to imagine themselves as the writer of the scene, and to say why they choose the *wala*-phrase instead of an *ʔaiy*-phrase, and how the use of an *ʔaiy*-phrase in place of the *wala*-phrase would have affected the scenario.

(35) bɛss ana bɪddiːš **ʔaiy waːḥad** mɪnhʊm.
but I want.1s-neg which one from-them
"But I don't want ANY of them."

Some speakers found no difference in either case. However, most found that the use of a *wala*-phrase in either scene implies an absolute and final answer, implying that no further discussion is possible or desired (and hence, for some speakers, it is a rude response), while on the other hand, *ʔaiy*-phrases imply consideration of or comparison between different

suitors or of different problems, and leave open more possibility for further discussion. This is in keeping with an treating *ʔaiy* as an arbitrary choice determiner ranging over actual referents (c.f. Israel, 1995; Lahiri, 1998; Jayez and Tovena, 2005).

This intuition is reinforced by another scene near the end of the same film in which an instance of an *ʔaiy*-phrase appears. Rana has persuaded both Khalil to marry her and her father to accept the marriage, and the wedding is being hurriedly prepared. Rana has a frank conversation with her wise grandmother, to whom she is explaining her reasons for getting married to such a doubtful suitor. Her grandmother is concerned that there may be a possibly unmentioned reason that Rana wants to marry in such a hurry, and apparently, in particular, that Rana might be pregnant by her boyfriend (native speakers concur with this interpretation).

Perhaps given the gravity of such a transgression in Arabic culture, the grandmather chooses not to broach the subject directly, but rather (in line G5 below), hints at it with a heavily accented use of the phrase *ʔaiy mušk**i:**la* "ANY problem":

(36) G1: kayfɪk?
how-you.fs
"How are you?"

R1: ɪmni:ḥa.
fine.fs
"(I'm) fine."

G2: ḥabi:bti, le:š bɪddik tɪzawwǧi hæða lwalad bɪðæt?
darling-my why want.2fs marry.2fs this.ms the-boy exactly
"Darling, why do you want to marry this boy in particular?"

le:š hæða ššæbb biðæt?
why this.ms fellow exactly
"Why *this fellow* in particular?"

R2: baḥɪbbu.
ind-love.1s-him
"I love him."

G3: sabab byimliːli raːsiˈ
reason ind-fill.3ms-to-me head-my
"A good reason to be sure!"

ulækɪn, leːš kull hassurʕa haiy?
but why all this-hurry this.fs
"But, why all this hurry? "

fiː ʔiši bɪddik tʔuliːli yyæ?
exist thing want.2fs tell.2fs-to-me obj-him
"Is there something you want to tell me?"

R3: ʔɪza kæːn ʕašarṭ alyoːm aw ʕʊmr maraḥ tṣiːr.
because was.3ms on-condition the-day or never not-fut happen.2fs
"Because it was on the condition [that it happen] today, or it's never going to happen."

G4: mɪsʔali ʔʊṣṣit ḥʊbb, yaʕni? [PAUSE]
matter story love meaning
"It's a matter of love, in other words?"

R4: [nods]

G5: šuːfi, ya ḥabiːbti, ʔɪza ṣaːr iši, wχaːyfi mɪnnu
look.fs, voc dear-my if happened thing and-afraid.fs from-him

ʔaw ɪza mɪš ɪmʔakkdi ʔɪnnu hæða ššabb huwa ʔɪlli biddɪk iyyæ,
or if not certain.fs that this the-boy he rel want.2fs obj-him,

ʔɪza bnɪʔdar kʊll iši, ʔɪza fiː **ʔaiy mʊškila** nɪʔdar nhallha.
then ind.can.1p every thing if exist any problem.fs can.1p solve.1p-her

"Look, my darling, if something happened and you're afraid of [the consequences], or if you're not sure that this fellow is who you want, then we can [do] everything [it takes], if there's *ANY* problem, we can take care of it."

R5: mafišš **ʔaiy mʊškili**, ʔana baḥɪbbu.
not-exist-neg any problem, I ind.love.1s-him
"There isn't *any problem*. I love him."

The same native speakers as were queried about the scene in (34) above were shown this segment, and asked why Rana used an *ʔaiy*-phrase in her last line rather than a *wala*-phrase, and whether it could have been paraphrased with *wala muškila* "(not) a single problem." They indicated that a *wala*-phrase could in principle have been used, but it would have cut off further discussion, as in (34).[8]

According to a Lahiri-type analysis, the set of alternatives introduced by the accented *ʔaiy muškila* would range over a set of contextually specified alternatives. In the context of this dialogue, the alternatives seem to be problems varying in degree of severity or unmentionability. It appears that the grandmother's use of *ʔaiy muškila* "any problem" corresponds to Kadmon and Landman's (1993) notion of *domain widening*: she intends to imply alternatives beyond those that can be politely talked about to include possibly taboo subjects. This predicts that use of a *wala*-phrase would be less felicitous or at least less preferred in the second dialog, because it would introduce alternatives ranging over the number of problems, rather than over the severity of a particular problem. This concurs with natives speakers' intutions.

On its *any*-interpretation, *ʔaiy* is like *wala* in being able to associate only with indefinite nouns. However, it contrasts with *wala* in being able to associate with non-singular indefinites:

(37) a. mašʊft **ʔaiy ṭaːlɪb** ɪlyoːm.
not-saw.1s which student the-day
"I didn't see ANY student today."

b. mašʊft **wala ṭaːlɪb** ɪlyoːm.
not-saw.1s not-even student the-day
"I didn't see even one student today."

(38) a. mašʊft **ʔaiy ṭaːlbeːn** ɪlyoːm.
not-saw.1s which student.dual the-day

[8] Also, by using the *ʔaiy*-phrase, Rana is echoing her grandmathers utterance, much as the sentence *rʊḥt ʕaššʊɣl* "yes, I went to work" used in answer to the question *rʊḥt ʕaššʊɣl?* "did you go to work?" echoes the form of the question.

"I didn't see ANY two students today."

b. * mašʊft **wala ṭaːlbeːn** ɪlyoːm.
not-saw.1s not-even student.dual the-day

(39) a. mašʊft **ʔaiy ṭʊllæːb** ɪlyoːm.
not-saw.1s which students the-day
"I didn't see ANY students today."

b. * mašʊft **wala ṭʊllæːb** ɪlyoːm.
not-saw.1s not-even students the-day

Another example of this distinction can be found in the use of *wala*-phrases as adverbial modifiers. These are *wala*-phrases that have come to have idiomatic meanings as degree modifiers, including *wala nɪtfi* "not a bit, not a scrap," and *wala ḥɛbbi* "not a bit, not a grain." For example, in (40a), *ḥɛbbi* expresses that the speaker doesn't care for politics to even a minimum degree, while in (40b) *wala nɪtfi* expresses that the speaker didn't sleep even a minimal amount of time:

(40) a. ɪssiyyaːsa, maːbaḥɪbbhæ **wala ḥɛbbi**.
the-politics.fs not-ind-1s.like-her not.even seed
"I don't like politics one bit."

b. manɪmtɪš **wala nɪtfi** bɪlleːl.
not-slept.1s-neg not.even scrap in-the-night
"I didn't sleep a bit last night."

Paraphrases with *ʔaiy*-phrases in place of the *wala*-phrases are unacceptable:

(41) a. * ɪssiyyaːsa, mabaḥɪbbhæ **ʔaiy ḥɛbbi**.
the-politics.fs not-ind-1s.like-her not.even seed

b. * manɪmtɪš **ʔaiy nɪtfi** bɪlleːl.
not-slept.1s-neg not.even scrap in-the-night

If *ʔaiy* is interpreted as introducing alternatives ranging over the witnesses in the denotation of the common noun complement, this contrast is predicted, because they would require a

context in which different grains or scraps are under consideration, an interpretation which is nonsensical.

The sets of alternatives associated with *wala* and *ʔaiy* also can overlap with the alternatives triggered by *ḥɪtta.* As was noted above, *ḥɪtta* "even" has a scalar interpretation very much like the interpretation of English, but the kinds of scales over which its alternatives range can vary with context. Like English *even*, *ḥItta* can freely associate with nouns that are plural (42a), definite (42b), or both (42c):

(42) a. maːkæn fiː **ḥɪtta wlæːd izɣaːr**.
not-was exist even children small.p
"There weren't even any small children."

b. **ḥɪtta zeːdaːn** makʊnt aʕrɪfu.
even Zeidan not-was.1s 1s.know-him
"Even Zeidan I didn't know."

c. **ḥɪtta lʕarab** mabɪḥku ʔɪla bilingliːzi
even the-arabs not-ind.3.speak.p except with-the-English
wɪða ḥaːku bɪlʕarabi bɪkuːn mukassɪr umaχluːṭ bɪlɪngliːzi.
and-if spoke.3mp with-the-Arabic ind.3.be broken and-mixed with-the-English
"Even the Arabs don't speak except in English, and if they did speak Arabic, it would be broken and mixed with English."

The overlap in the interpretations of *wala*, *ḥɪtta*, and *ʔaiy* correctly predicts that both *wala* and *ʔaiy* can be used in combination with *ḥɪtta* (43a,43b) or *ʔaiy* (29c), or even that all three can be used together (43c) for the sake of particularly over-the-top emphasis:

(43) a. maːfi **wala ḥɪtta** kɪlmɪt šʊkr.
not-exist not.even even word thanks
"There isn't EVEN ONE word of thanks."

b. maːfi **ḥɪtta ʔaiy** kɪlmɪt šʊkr.
not-exist even which word thanks
"There isn't EVEN ONE WORD of thanks."

c. maːfi **wala ḥɪtta ʔaiy** kɪlmɪt šʊkr.
not-exist not.even even any word thanks
"There is NOT EVEN ONE WORD of thanks!!"

To summarize, *wala* is a scalar focus particle that overlaps with the interpretation of the quodlibetic determiner *ʔaiy* "any, which" and the scalar focus particle *ḥɪtta* "even." However, its meaning is more specific, in that it must combine with a singular indefinite noun phrase (its *associate*), and presupposes alternatives varying over the cardinality value of the associate.

In terms of their distribution, *wala*-phrases are interpreted as contributing distinct negation in the general case, with the concurrent or negative concord interpretation restricted to a specific set of contexts. This can be expressed as an *elsewhere condition*:

(44) a. A *wala*-phrase N dependent on a predicate P must be licensed — and hence have a non-distinct interpretation — if its interpretation would otherwise contradict some aspect of the meaning of P (the Tovena-Herburger Generalization Tovena, 1996; Herburger, 1998, 2000, 2001).

b. *Wala*-phrases need not be licensed elsewhere.

Wala-phrases contribute distinct negation in sentence-initial position, preceding the verb or predicate complex, regardless of the thematic roles or functions they fill (modulo the set of exceptions that I call the *mute-ma* construction, discussed in Ch.6, p.234). In this respect, *wala*-phrases are like n-words in Spanish (c.f. Laka, 1990; Vallduví, 1994; Suñer, 1995; Herburger, 1998, 2001; Espinal, 2000b,a; Guerzoni and Alonso-Ovalle, 2003; Aranovich, 2007), Italian (c.f. Zanuttini, 1991; Acquaviva, 1999; Guerzoni and Alonso-Ovalle, 2003), and other languages in which the *non-strict* or *partial* negative concord pattern has been noted (c.f. Giannakidou, 1999, 2000, 2002):

(45) a. **wala ḥada** bɪḥɪbbni.
not.even one ind.3.love-me
"Not even one person loves me." (Subject/Agent)

b. **wala** **marra** šʊftu.
not.even time *saw.1s-him*
"I haven't seen it even once." (Temporal Adverb)

c. **wala** **kɪlmi** ḥakeːt laḥada.
not.even word *told.1s to-one*
"Not one word did I say to anyone." (Object)

They also contribute distinct negation in the second conjunct of coordination and gapping constructions (c.f. Progovac, 2000; Blaszczak, 2001b):

(46) a. ʔɪma (bazawwɪǧ) leːla, ʔɪma **wala** **waḥdi**!
either *ind.1s.marry* *Leila or* *not.even one.fs*
"Either (I marry) Leila, or no one!"

b. ʔɪnta ʔɛkalt ɪkθiːr, wana **wala** **iši**!
you.ms ate.2ms much *and-I not.even thing*
"You ate a lot, and I nothing!"

Elsewhere, *wala*-phrases typically are subject to the licensing requirement when they occur in argument positions that follow the predicate and that correspond to or specify event participants:

(47) a. **maː**kaltɪš **wala** **iši**.
not-ate.1s-neg not.even thing
"I didn't eat even one thing."

b. * ʔɛkaltɪš wala iši.
ate.1s-neg not.even thing

(48) a. mašʊftɪš **wala** **ḥada** mɪnhʊm.
not-saw.1s-neg not.even one *from-them.mp*
"I didn't see even one of them."

b. * šʊft **wala** **ḥada** mɪnhʊm.
saw.1s not.even one *from-them*

When *wala*-phrases require licensing, they can only be licensed by negative expressions such as negation morphemes (whether independent or expressed as clitics), as in the examples above, and in the complement position of *biduːn* "without" (49a), *qabl* "before" (49b), *manaʕ-yɪmnaʕ* "prevent" (49c), or *baṭṭal-ybaṭṭɪl* "stop, cease, quit" (49d):

(49) a. waɬɬaːhi baðɛkkɪr bɪnt nağaḥat bimašruːʕ ɪttaχarruğ
by-God ind.1s.remember girl succeeded.3fs with-project the-graduation
uğæːbat ʕilæːma ʕaːliyya **bɪduːnma** taʕmɪl **wala** **išɪ**.
and-brought.3fs grade.fs high.fs without-that 3fs.do not.even thing
"By God, I remember a girl who graduated and got a high average without having done even one thing."

b. ʔawwalma ʔaṣbaḥ **qabl** **wala** **šiː** ʔaχaðli kuːb ḥaliːb...
first-that 1s.arise before not.even thing 1s.take-to-me cup milk
"When I first arise, before even one thing, I get myself a cup of milk."

c. **mamnuːʕ** **wala** **waːḥad** kæːn raʔiːs yuršɪḥ ḥæːlu kamæːn marra.
prohibited not.even one was president 3.nominate self-his also time
"[It's] prohibited for any person [who] was president to nominate himself another time."

d. **baṭṭalt** ɛḥki **wala** maʕ **waːḥad**.
ceased.1s 1s.speak not.even with one
"I stopped speaking even with one person."

These expressions all have the property that they entail the negation of their complements. For example, I assume *biduːn* (and its English analog *without*) to have the meaning in (50a):[9] I assume a meaning for *qablma* "before" that is almost identical to the meaning for *without* (50b).[10] Likewise, *baṭṭal-ybaṭṭɪl* "stop, quit, cease" and *manaʕ-yɪmnaʕ* "forbid,

[9]They are *antimorphic* operators in Zwarts's (1996) terms, as well as *antiveridical* operators in Giannakidou's (1998) terms.

[10]Beaver and Condoravdi (2003) propose an analysis of English *before* that includes an antiveridical interpretation (which they refer to as the "counterfactual reading") according to which *p before q* means (effectively) "p finished at time t without q having begun at t and had p not occurred, then q would probably have begun at t".

prevent" entail the negation of their complements: *x stops P* interpreted with respect to a time t means "from t onward, $\neg Px$, and Px before t," and *x prevents Py* means "x causes it to be the case that $\neg Py$."

(50) a. **biduːnma** $\vdash (\mathsf{s}\backslash\mathsf{s})/\mathsf{s} : \lambda q.\lambda p.\lambda t.[\, p\ at'\, t\ \ \&\ \neg q\ at'\ t'\,]$

b. **qablma** $\vdash (\mathsf{s}\backslash\mathsf{s})/\mathsf{s} : \lambda q.\lambda p.[\, p\ at'\, t\ \ \&\ \neg q\ at'\ t\,]$

c. **baṯṯal** $\vdash (\mathsf{s}|\mathsf{np})/(\mathsf{s}|\mathsf{np}) : \lambda P_{ed}.\lambda x.$

I therefore conclude that *wala*-phrases that require licensing at all must be licensed by expressions that entail the meaning of predicate negation.

Wala-phrases cannot be licensed in contexts that license "plain" negative polarity interpretations of words like the following (c.f. Klima, 1964; Fauconnier, 1975; Ladusaw, 1979; Hoeksema, 1983; Linebarger, 1987; Kadmon and Landman, 1993; Zwarts, 1996; Lahiri, 1998; von Fintel, 1999; Szabolsci, 2004):

(51) a. *iši/ši:* "thing, anything";

b. *ḥada/waːḥad* "one, anyone";

c. *ʕʊmr* "ever".

These environments include the restrictions of universal quantifiers (52), antedecent clauses of conditional sentences (53-54), comparatives (55), questions (56), [11] or adversative predicates (57):

(52) a. ʔana ʕɪndi ṭalb, **kʊll waːḥad** bɪʕrɪf **ʔaiy ši:** ʕan **ʔaiy madiːna**
I at-me request every one ind.3.know any thing about any city
yɪḥkiːhæ hoːn.
3.say-her here
"I have a request: everyone who knows anything about any city should write it here."

b. * **kʊll waːḥad** bɪʕrɪf **wala ši:** ʕan ʔaiy madiːna yɪḥkiːhæ hoːn.
every one ind.3.know not.even thing about any city 3.say-her here

[11] There are examples like the following, in which a *wala*-phrase occurs following a comparative, but expresses negation independently: *waːḥad ʔaḥsan mɪn wala waːḥad* "Someone is better than no one."

(53) a. **ʔɪðə** ʕɪrɪft **ʔaiy iši** ʔɪn ša:h ʔaɬɬa:h baḥki:lak.
if knew.1s any thing if willed God ind.1s.tell-you
"If I learn anything, God willing, I will tell you."

b. * **ʔɪðə** ʕɪrɪft **wala iši** baḥki:lak.
x if knew.1s not.even thing ind.1s.tell-you

(54) a. bɪddi ʔaʕrɪf **ʔɪðə** dafaʕɪt **ʔaiy iši** ɣe:r ɪlʔɛlf di:na:r,
want.1s 1s.know if paid.2ms any thing other the-thousand dinar

yaʕni lʕamɪlliyya kʊllhæ kæm bɪtkɛllɪf?
meaning the-process all-her how.much ind.3fs.cost

"I want to know if you paid anything other than the 1000 dinars, in other words, the whole process, how much does it cost?"

b. * bɪddi ʔaʕrɪf **ʔɪðə** dafaʕɪt **wala iši** ɣe:r ɪlʔɛlf di:na:r.
want.1s 1s.know if paid.2ms not.even thing other the-thousand dinar

(55) a. kʊllhʊm muʕtaqɪdi:n ʔinnhum **ʔaḥla mɪn ʔaiy waḥdi** ʔʊχra.
all-them believing.p that-they sweeter from any one.fs other.sf
"They all think that they are prettier than any other."

b. * kʊllhʊm muʕtaqɪdi:n ʔɪnnhum **ʔaḥla mɪn wala waḥdi** ʔʊχra.
all-them believing.p that-they sweeter from not.even one.fs other.fs

(56) a. bɪddak (**ʔaiy**) **iši**?
want.2ms any thing
"Do you want anything?"

b. * bɪddak **wala iši**?
want.2ms not.even thing

(57) a. **ṣaʕab** tæ:kol **ʔaiy ši:**.
hard 3fs.eat any thing
"[It's] hard for her to any any thing."

b. * **ṣaʕab** tæ:kol **wala ši:**.
hard 3fs.eat not.even thing

Wala-phrases also cannot be licensed by other *wala*-phrases, although they can be licensed by other sentential negation morphemes and by *maḥada*-compounds, which contain a sentential negation morpheme:

(58) a. * **wala** **ḥada** ʔæːkol **wala** **iši**.
not.even one ate not.even thing

b. **ma**ʔɛkalıš ḥada **wala** **iši**.
not.did-neg one not.even thing
"No one ate a single thing."

c. **wala** ʔæːkol ḥada **wala** **iši**.
not.even did one not.even thing
"No one ate a single thing at all."

d. **maḥadaːš** ʔæːkol **wala** **iši**.
not-one-neg ate not.even thing
"No one ate a single thing."

In this respect, *wala*-phrases contrast with *ʔaiy*-phrases headed by the *arbitrary choice* (or *quodlibetic*) determiner *ʔaiy* "which, any" which is is acceptable in all these environments.

4.2.2 Two Types of Scalar Wala

Up to this point, I have discussed scalar-*wala* as a single particle. However, in this subsection I argue that it in fact corresponds to two words, differing in terms of the scope of the negation that they contribute, and in their etymological sources. Both, however, have similar scalar interpretations. This means that their intepretation involves comparing alternative propositions that differ in terms of some parameter, and which are ordered in terms of a scale (c.f. Fauconnier, 1975; Horn, 1989; Krifka, 1995b; Lahiri, 1998; Giannakidou, 2007).

I argue that the two senses of scalar *wala* differ in terms of the scope they assign to their negative meaning components. Both have scalar interpretation, which I represent as a

conjunction of two formulas derived by application of the focus (or rheme) and background (or theme) meanings of the NP argument to the meaning of the verb phrase argument. As discussed in Ch.2, the focus and background meanings are accessed by means of the projection operators $[\theta]$ and $[\rho]$. However, I argue that strong-*wala* contributes negation operators that scope over both elements of the conjunction (59a), while weak-*wala* only contributes a negation operator that scopes over the second element of the conjunction (59b):

(59) a. **wala** $\vdash \lambda P_{(ed)\langle dd\rangle}.\lambda Q_{((ed)d)d}.\left\langle \begin{array}{c} \neg Q([\theta]P) \\ ; \\ \neg Q([\rho]P) \end{array} \right\rangle$ (Strong *wala*)

b. **wala** $\vdash \lambda P_{(ed)\langle dd\rangle}.\lambda Q_{((ed)d)d}.\left\langle \begin{array}{c} Q([\rho]P) \\ ; \\ \neg Q([\theta]P) \end{array} \right\rangle$ (Weak *wala*)

For example, (60a) and (60b) contain strong- and weak-*wala* respectively:

(60) a. **wala ṭaːlɪb** ʔağa ʕaṣṣaff ɪlyoːm.
not.even student came to-the-class today
"Not even one student came to class today."
Not one student came to class today, and for all cardinalities n greater than 1, n students did not come to class today.

b. mağaːš **wala ṭaːlɪb** ʕaṣṣaff ɪlyoːm.
not-came-neg not.even student to-the-class the-day
"Not even one student came to the class today."
Not one student came to class today, and for all cardinalities n greater than 1, n students did not come to class today.

(60a) contains strong-*wala* in pre-verbal topic position, while (60b) contains weak-*wala* in a post-verbal subject position. In terms of truth conditions, they have the same entailments, namely that for no cardinality n was it the case that n students came to class on the day in question. However, the two sentences differ in terms of information structure: (60a) is a

direct answer to the question "Who came?" (possibly asked with respect to a particular set of people), while (60b) is a direct answer to "What happened?" or "How was the party?"

The use of each correlates strongly with word order relative to the clausal predicate: sentence-initial or pre-verbal *wala*-phrases are typically interpreted as strong-*wala*, while post-verbal *wala*-phrases are typically interpreted as weak-*wala*. Nonetheless, exceptions do occur. In the "mute-ma" construction (discussed below), a pre-verbal *wala*-phrase has a weak-*wala* interpretation, while in certain contexts involving contrastive focus (discussed in Ch. 5), post-verbal *wala*-phrases can have the strong reading.

4.2.2.1 Strong-*Wala*

Strong-*wala* is typically is used in pre-verbal position, although, as I argue in Ch.6, it also can occur in post-verbal positions. When used in the pre-verbal position, the *wala*-phrase is often interpreted as the subject of a lexical predicate, such as a adjective or participle (61a), prepositional phrase (61c), predicate noun phrase (61b), or finite verbs (61d) or *semi-verbs* (61e-61f):[12]

(61) a. liyannu **wala** **waːḥad** mɪnhʊm [ṭaːlɪb ʕɪlɪm šɪrʕi].
because not.even one *from-them* *student knowledge legal*
"...because not one of them is a student of (Islamic legal knowledge)."

b. **wala** **ṭaːlɪb** [mawǧuːd ɪlyoːm].
not.even student *present* *the-day*
"Not one student is present today."

c. **wala** **waːḥad** ʕarabi [fissiːrfɪr ɪlli ʔana fiː].
not.even one *Arabic* *in-the-server rel I* *in-him*

[12]Sentences like (61a-61f) have the structure of what is called a *nominal clause* in traditional Arabic terminology (Arabic *ǧʊmla ʔɪsmiyya*) (c.f. Khan, 1988; Brustad, 2000; Abdul-Raof, 1999; Abdul-Raof, 2001; Hoyt, 2007b). This term describes clauses that have a subject-predicate and/or topic-comment structure, in which a sentence-initial subject or topic (referred to here as the *initial-NP*, after the Arabic terms *mʊbtadɪʔ* "inchoative, that which begins") is predicated of an open sentence (referred to here as the *report* constituent, after the Arabic term *χabar* "news, report"). The report constituent can be either a lexical predicate, or a *derived predicate*, by which I mean a relative-clause like predicate by lambda-abstraction over a pronoun meaning within a full clause.

"Not one Arab [is] on the server that I'm on."

d. wala waːḥad ḥaka kɪlmɪt šʊkɪr.
not.even one spoke word.fs thanks
"Not even one person said a word of thanks."

e. **wala waḥdi** [bɪdd**hæ** tǧawwɪzni].
not.even one.fs want.3fs 3fs.marry-me
"Not one woman wants to marry me."

f. **wala waːḥad** mɪmhʊm [ʕɪnd**u** kɪlmi ygʊlhæ].
not.even one from-them.mp at-him word.fs 3.say-her
"Not even one of them has a word to say."

However, just as commonly, the initial NP binds a resumptive pronoun in a non-subject position within the sister-constituent of the *wala*-phrase. For example, in (62a) the clause-initial *wala*-phrase *wala ktæːb* "not one book" binds (i.e. is resumed by) the object clitic-pronoun attached to *katabu* "(he) wrote him/it," which is embedded inside a relative clause within an embedded question. Likewise, (62b) shows the initial *wala*-phrase *wala waːḥad* "not one person" binding a possessive pronoun within the noun phrase *baṣmatu* "his fingerprint" (resumptive pronouns shown in bold):

(62) a. **wala ktæːb** [ʕɪrɪfɪt miːn kæːn ɪlli katab**u**]
not.one book knew.1s who was rel wrote-him
"Not one book [was such that] I knew who it was that wrote it."

b. **wala waːḥad** [bakat baṣmat**u** waːdḥa ʔɛbadan].
not.even one was.3fs fingerprint.fs-his clear.fs never
"Not one person [was such that] his fingerprint was ever clear."

However, resumption is not required, and a *wala*-phrase can also bind a gap provided that island-constraints are complied with:

(63) a. wala waːḥad ʕɪrɪfɪt.
not.even one knew.1s
"Not one [of them] did I know."

b. wala iši ʔɛkalıt ılyoːm.
not.even thing ate.1s the-day
"Not one thing did I eat today."

The generalization is therefore that strong-*wala* NPs can combine with either a lexical predicate, or a clause containing a resumptive pronoun, which is interpreted as a lambda-abstract.

Generalization 4.2. Initial NPs headed by strong-*wala* combine with report constituents that can be either lexical or derived predicates.

Initial wala-NPs are frequently interpreted with a partitive or relevance presupposition, meaning that they presuppose the existence of a set of referents being quantified over, or presuppose a question-under-discussion of the form "Who (is) X?" or "How many members of Y are X?" (for some predicate X and some set of referents Y). For example, (62a) would presuppose the existence of a certain collection of books under discussion in a given context, and a question of the form "For how many of these books could the speaker could identify the author?" The sentence would assert that for not even one of these books was it the case that the speaker knew who wrote it. Likewise, (62b) presupposes the existence of a set of referents and a question of how many of their fingerprints were clear.

This might suggest that strong-*wala* be treated as a strong negative quantificational determiner (strong in the sense of triggering a partitive presupposition; c.f. Barwise and Cooper, 1981; von Fintel, 1994; Zucchi, 1995; Cresti, 1995, a.m.o.), as in the following lexical entry (64):[13]

(64) *wala* $\vdash (\mathsf{s}\backslash\mathsf{np})/\mathsf{np} : \lambda P_{ed}.\lambda Q_{ed}.\mathsf{not}\ [\ k \mid Pk\ \mathsf{and}\ Qk\ ]$

However, data can be found in which a topical *wala*-phrase does not presuppose the existence of a set of referents. For example, (65) shows a topical *wala*-phrase interpreted

[13]C.f. Milsark (1974, 1977); Carlson (1977); Barwise and Cooper (1981); Enç (1991); Diesing (1992); de Hoop (1992); Zucchi (1995); Ladusaw (2000), among many others.

(by means of a resumptive pronoun) as the object of a creation verb. The meaning of the sentence does not presuppose the existence of a set of particular words that the speaker was not able to write. To the contrary, it negates the existence of such a set. Instead, the sentence seems to have only the presupposition that the question under discussion is how much writing the speaker was able to produce on the day in question:

(65) **wala** **kılmi** ʕırıft ɛktıbhæ lyoːm.
not.even word knew.1s 1s.write-her the-day
"Not one word was I able to write today."

I take from examples like this that, while (64) is a possible interpretation of strong-*wala*, it is not a necessary one, and indeed one that could be derived by inference from other meanings; and hence, that a general analysis of strong-*wala* should not treat it as a quantificational determiner of the usual kind.

I make an additional assumption about the formal properties of strong-*wala* which is based on conjecture regarding the information structure of Levantine Arabic sentences. This is that a sentence beginning with a strong-*wala* NP contains a topic-focus or theme-rheme articulation. The conjecture is that this may correlate with certain intonational constituencies (c.f. Steedman, 2000a,b).[14] Following Steedman's (2000a) coventions, I assume theme and rheme constituents correspond to intonational units marked with an ι-feature, while sub-constituents of each are marked with θ- and ρ-features respectively. I then assume that a strong-*wala* phrase returns a category s marked with the ι modality or feature (I return to this in Ch. 6). As such, I assume the following type assignment for strong-*wala*:

(66) $wala \vdash (\mathsf{s}_\iota/(\mathsf{s}_\eta|(\mathsf{s}_\eta|\mathsf{np}_\eta)))/(\mathsf{s}|(\mathsf{s}|\mathsf{np}_{indef.sing})) : \lambda P_{(ed)\langle dd\rangle}.\lambda Q_{(((ed)d)d)}.\left\langle \begin{array}{c} \neg Q([\theta]P) \\ ; \\ \neg Q([\rho]P) \end{array} \right\rangle$

(Strong *wala*)

[14] Basic research into the intonation and information structure of Levantine Arabic is still very preliminary (c.f. Chahal, 2001, 1999), and the conjecture is untestable at this time and will have to wait for further research.

Strong-*wala* takes as it first argument a singular indefinite noun phrase with a focal interpretation, represented as a focus pair of type $\langle \alpha, \beta \rangle$, the components of which are accessed using the projection functions $[\theta]$ and $[\rho]$. It takes as its second argument a verb taking an object of a raised $(ed)d$ type, and returns a pair of conjoined formulas in which a negation scopes over the theme- and rheme-meanings of the NP argument applied to the meaning of the verb argument. This derives the correct scope interpretation, according to which the object of "write" exists only relative to the result event of the writing process. Example (65) then is derived as follows:

(67) a.

wala *not.even*	**kılmi** *word.fs*
$(\mathsf{s}_\iota/(\mathsf{s}_\eta\|(\mathsf{s}_\eta\|\mathsf{np}_\eta)))/(\mathsf{s}\|(\mathsf{s}\|\mathsf{np}_{indef.sing}))$	$\mathsf{s}\|(\mathsf{s}\|\mathsf{np}_{indef.sing})$
$\lambda P_{(ed)\langle dd\rangle}.\lambda Q_{(((ed)d)d)}$	λR_{ed}
$\left[\left\langle \begin{array}{c}\text{not } Q([\theta]P)\\;\\ \text{not } Q([\rho]P)\end{array}\right\rangle\right]$	$\left[\left\langle \begin{array}{c}\text{more than one word}_k(R)\\;\\ \text{one word}_k(R)\end{array}\right\rangle\right]$
$\mathsf{s}_\iota/(\mathsf{s}_\eta\|(\mathsf{s}_\eta\|\mathsf{np}_\eta))$	
$\lambda Q_{(((ed)d)d)}.\left\langle \begin{array}{c}\text{not } Q(\lambda R_{ed}.\text{more than one word}_k(R))\\;\\ \text{not } Q(\lambda R_{ed}.\text{one word}_k(R))\end{array}\right\rangle$	

b.

wala kılmi *not.even word.fs*	**ʕırıfıt ɛktıbhæ** *knew.1s 1s.write-her*
$\mathsf{s}_\iota/(\mathsf{s}_\eta/(\mathsf{s}_\eta\backslash(\mathsf{s}_\eta/\mathsf{np}_\eta)))$	$\mathsf{s}_\iota/(\mathsf{s}_\iota\backslash(\mathsf{s}_\iota/\mathsf{np}_\iota))$
$\lambda Q_{(((ed)d)d)}$	$\lambda R_{(ed)d}$
$\left[\left\langle \begin{array}{c}\text{not } Q(\lambda X_{ed}.\text{more than one word}_k(X))\\;\\ \text{not } Q(\lambda X_{ed}.\text{one word}_k(X))\end{array}\right\rangle\right]$	[[I could cause$(R(\lambda y.y$ to exist))]]
s_ι	
$\left\langle \begin{array}{c}\text{I could not cause more than one word}_k \text{ to exist}\\;\\ \text{I could not cause one word}_k \text{ to exist}\end{array}\right\rangle$	

In the derived meaning, the negation operators contibuted by *wala* scope over the entire verb meaning, while the focus and background meanings associated with the common noun *kılmi* "(one) word" are interpreted within the scope of the *cause* operator. This derives the

intended scope reading for *kɪlmi* "(one) word."

4.2.2.2 Weak-*Wala*

The second variant of scalar-*wala* I refer to as "weak scalar-*wala*" or just "weak-*wala*," to which I assign the following category type:

(68) $wala \vdash (\mathsf{s}_\iota/(\mathsf{s}_\eta|(\mathsf{s}_\eta|\mathsf{np}_\eta)))/(\mathsf{s}|(\mathsf{s}|\mathsf{np}_{indef.sing})) : \lambda P_{(ed)\langle dd\rangle}.\lambda Q_{(((ed)d)t)}.\left\langle \begin{array}{c} Q([\rho]P) \\ ; \\ \neg Q([\theta]P) \end{array} \right\rangle$

(Weak-*wala*)

Weak-*wala* is related etymologically to the homophonous additive particle *wala* "nor" (referred to here as "nor-*wala*"), which is very like English *nor* or Italian *neppure* or *neanche* (c.f. Mari and Tovena, 2006; Tovena, 2006) in its use. Nor-*wala* implicates a set of alternatives ranging over a class or scale and asserts that one of the alternatives holds. The set of alternatives range over negative propositions. As such, for nor-*wala* to be used felicitously, it has to be preceded (either in the sentence or in the context) by at least one other negative alternative.[15]

For example, (69) shows sentences containing a sequence of noun phrases conjoined by *la* "neither" and a number of *wala*-disjuncts:

(69) ilḥaʔiːʔa **la** ǧɛddi **wala** sɪtti **wala** ʔɪmmi **wala**
the-truth neither grandfather-my nor grandmother-my nor mother-my nor
ʔabbi **wala** ʔana **wala** ʔinta **wala ḥada** fiːna bɪʕrɪf issuʕaːda
father-my nor I nor you.ms nor one in-us ind.3.know the-happiness.fs
lmuṭlaqa.
the-total.fs
"The truth is that neither my grandfather, nor my grandmother, nor my mother, nor my father, nor I, nor you, nor [any] one of us knows complete happiness."

[15]For analyses of additive particles, see König (1991); Lechner (2000); Schwenter and Vasishth (2000); Rullmann (2003); Hendriks (2004); Mari and Tovena (2006); Wurmbrand (2008). Most of these references focus on *either…or* or *neither…nor*. There seems to be little discussion of *nor* as a particle in its own right, with the exception of Wurmbrand (2008), which is a squib. More work is needed here.

The sentence in (69) presupposes a question under discussion as to whether anyone in the family in question has known complete happiness in his or her life. The *wala*-disjuncts introduce various alternatives in the set of family members under consideration, each disjunct implicating that that the alternative expressed by the preceding disjunct was false (with respect to having experienced complete happiness). The first disjunct *la ǧɛddi* "neither my grandfather" (introduced by *la*, "not" corresponding here to English *neither*) expresses that, of the various alternatives, the speaker's grandfather did not experience complete happiness. The following *wala*-disjunct *wala sɪtti* "nor my grandmother" implies (possibly as a presupposition) that the preceding disjunct (*la ǧɛddi* "neither my grandfather") was a negative alternative, and adds to this fact that the speakers grandmother did not experience complete happiness. Next, *wala ʔɪmmi* "nor my mother" implies that the preceding disjunct (*wala sɪtti* "nor my grandmother") is a negative alternative the speakers mother did not experience complete happiness. This list continues, so on and so forth, until the last *wala*-disjunct *wala ḥada* "nor anyone" which closes off the set of alternatives being discussed, expressing that there are no further alternatives beyond those already mentioned for whom it is true that they have experienced complete happiness (c.f. Mari and Tovena, 2006; Tovena, 2006).

Likewise, (70) presupposes a question-under-discussion of what there is to drink, and ends with a *wala*-phrase *wala iši* "not one thing," which closes off the set of alternative beverages under consideration.

(70) maːfi (lɛ) šaiy **wala** ɡahwɛ **wala** iši.
not-exist no tea nor coffee nor thing
"There's no tea nor coffee nor anything."

I conjecture that the development of weak-*wala* was influenced by constructions like this, in which a final *wala*-disjunct with a singular noun phrase closes of a class off alternatives ordered on a scale.

Like strong-*wala*, weak-*wala* has a scalar interpretation ranging over cardinality values. Its interpretation introduces two conjoined propositions, according to which the

first conjunct has a meaning ranging over scale values greater than one, and the second conjunct has a meaning with one as a scalar value. For example, (71) is interpreted as (71a), and by a de Morgan inference as (71b) as well:

(71) ma:kaltıš wala iši.
not-ate.1s-neg not.even thing
"I didn't eat (not) even one thing."

a. "I didn't eat more than one thing and I didn't eat one thing."

⇔

b. "I didn't eat (either) more than one thing or (even just) one thing."

The sentence asserts that the speaker did not eat one thing during the period in question. It has a scalar meaning component — the meaning component corresponding to English *even one* — according to which for all cardinality values n greater than one, *I ate n things* is false (c.f. Lee and Horn, 1994; Rullmann, 1997; Lahiri, 1998). In other words, the entailments associated with (71) can be represented as the conjunction of two negated proposition in (71a), as well as, by a de Morgan inference, the negation of a disjunction in (71b):

To capture the scalar interpretation, I treat weak-*wala* as a focus-sensitive operator with a meaning similar to that of *nor*.[16] This means that its meaning is a function from a focused NP-meaning and a focused verb meaning, and returning a pair in which the background meaning of the NP combines with the focus meaning of the verb-phrase argument, and vice versa.

Applying weak-*wala* to a singular indefinite noun-phrase returns a function from verb-phrase meanings to a focus-meaning, in which the verb-phrase meaning is the background, and in which the foreground asserts the meaning of the verb-phrase combined with both a stronger alternative and the negative of the weakest alternative:

(72) *Weak-Wala*:
wala $\vdash (\mathsf{s}\backslash(\mathsf{s}/\mathsf{np}^{\uparrow}_{ind.sing}))/\mathsf{np}^{\uparrow}_{ind.sing} : \lambda P_{(ed)d}.\lambda Q_{((ed)d)t}.(Q([\theta]P)\ ;\ Q([\rho]P))$

[16](c.f. Rooth, 1992; Krifka, 1991, 1992, 1993, 2006; Beaver and Clark, 2008, a.m.o.).

Weak-*wala* is subject to a morphosyntactic licensing requirement according to which its second argument must be morphologically marked as negative. I represented this as a feature specification on the second argument requiring it to be marked with a negative value for a binary polarity feature (c.f. Ladusaw, 1992; Guerzoni and Alonso-Ovalle, 2003; Zeijlstra, 2004; Dowty, 1994; Bernardi, 2002). Expressions that are marked with negation are $-\mathsf{pol}$ (or just neg), while expressions that are unmarked for negation are $+\mathsf{pol}$ (or just pos). As such, the type in (72) is further refined as follows:

(73) *Weak-Wala*:
wala $\vdash (\mathsf{s}_{neg}\backslash(\mathsf{s}_{neg}/\mathsf{np}^{\uparrow}_{ind.sing}))/\mathsf{np}^{\uparrow}_{ind.sing} : \lambda P_{(ed)d}.\lambda Q_{((ed)d)t}.(Q([\theta]P)\ ;\ Q([\rho]P))$

Morphemes that contribute a negation operator to meaning composition also specify a morphosyntactic binary negation or polarity feature

(74) a. **ma:kaltɪš** $\vdash \mathsf{s}_{neg}/(\mathsf{s}\backslash(\mathsf{s}/\mathsf{np})) : \lambda Z_{(ed)d}.Z(\lambda y.[\ \mathsf{I}_x\ \mathsf{didn't}\ \mathsf{eat}_e\ y\ ])$

b. **ʔɛkalɪt** $\vdash \mathsf{s}_{pos}/(\mathsf{s}\backslash(\mathsf{s}/\mathsf{np})) : \lambda Z_{(ed)d}.Z(\lambda y.[\ \mathsf{I}_x\ \mathsf{ate}_e\ y\ ])$

A weak-*wala* NP is licensed successfully if it combines with a category headed by s_{neg}:

(75)

ma:kaltɪš *not-ate.1s-neg*	**wala iši** *not.even thing*
$\mathsf{s}_{neg}/(\mathsf{s}\backslash(\mathsf{s}/\mathsf{np}))$	$\mathsf{s}_{neg}\backslash(\mathsf{s}_{neg}/(\mathsf{s}\backslash(\mathsf{s}/\mathsf{np})))$
$\lambda Z_{(ed)d}.Z(\lambda y.[\ \mathsf{I}_x\ \mathsf{didn't}\ \mathsf{eat}_e\ y\ ])$	$\lambda Q_{((ed)d)t}.\left\langle \begin{array}{c} Q(\lambda P_{et}.\mathsf{more\ than\ one}_k\ \mathsf{thing}_k(P)) \\ ; \\ Q(\lambda P_{et}.\mathsf{one}_k\ \mathsf{thing}_k(P)) \end{array} \right\rangle$
s	
$\left\langle \begin{array}{c} \mathsf{I}_x\ \mathsf{didn't}\ \mathsf{eat}_e\ \mathsf{more\ than\ one}_k\ \mathsf{thing}_k \\ ; \\ \mathsf{I}_x\ \mathsf{didn't}\ \mathsf{eat}_e\ \mathsf{one}_k\ \mathsf{thing}_k \end{array} \right\rangle$	

Licensing fails when a weak-*wala* NP combines with a category headed by s_{pos} because of a category mismatch:

(76)

ʔɛkalɪt *ate.1s-neg*	**wala iši** *not.even thing*
$\mathsf{s}_{pos}/(\mathsf{s}\backslash(\mathsf{s}/\mathsf{np}))$	$\mathsf{s}_{neg}\backslash(\mathsf{s}_{neg}/(\mathsf{s}\backslash(\mathsf{s}/\mathsf{np})))$
$\lambda Z_{(ed)d}.Z(\lambda y.[\ \mathsf{I}_x\ \mathsf{ate}_e\ y\ ])$	$\lambda Q_{((ed)d)t}.\left\langle \begin{array}{c} Q(\lambda P_{et}.\mathsf{more\ than\ one}_k\ \mathsf{thing}_k(P)) \\ ; \\ Q(\lambda P_{et}.\mathsf{one}_k\ \mathsf{thing}_k(P)) \end{array} \right\rangle$
$*\,*\,*$	$*\,**$

4.2.3 Multiple *Wala*-Phrases

The analysis captures the observation that multiple *wala*-phrases can be licensed at once. Interpretation of sentences like these involves evaluation of complex scalar models, a point I return to below.

For example, the sentence in (77) can be analyzed either as in (78) or as in (81), depending on the order of combination of the constituents.

(77) maḥake:tɪš wala kɪlmi wala laḥada.
not-said.1s-neg not.even word not.even to-one
"I haven't said even one word to a single person."

(78) shows the two argument *wala*-phrases applying to the verb in succession, giving the logical form in (78b):[17]

(78) a.

maḥake:tɪš *not-said.1s-neg*	**wala kɪlmi** *not.even word*
$(\mathsf{s}_{neg}/\mathsf{pp}^{\uparrow})/\mathsf{np}^{\uparrow}$	$(\mathsf{s}_{neg}/\mathsf{pp}^{\uparrow})\backslash((\mathsf{s}_{neg}/\mathsf{pp}^{\uparrow})/\mathsf{np}^{\uparrow})$
$\lambda R_{(ed)d}.\lambda S_{(ed)d}.$ $[\neg past'_t S(\lambda y.R(\lambda z.speaker'_x(\lambda x.say'_e yzxe)))]$	$\lambda Q_{((ed)d)((ed)d)t}.\lambda P_{(ed)d}.$ $\left[\left\langle \begin{array}{c} Q(\lambda W_{et}.words'_k(W))(P) \\ ; \\ Q(\lambda W_{et}.one.word'_k(W))(P) \end{array} \right\rangle\right]$
$\mathsf{s}_{neg}/\mathsf{np}^{\uparrow}$	
$\lambda P_{(ed)d}.$ $\left[\left\langle \begin{array}{c} \lambda S_{(ed)d}.\neg past'_t S(\lambda y.words'_k(\lambda z.speaker'_x(say'_e yzxe)))(P) \\ ; \\ \lambda S_{(ed)d}.\neg past'_t S(\lambda y.one.word'_k(\lambda z.speaker'_x(\lambda x.say'_e yzxe)))(P) \end{array} \right\rangle\right]$	

[17] For the sake of space, meaning representation in (78) are shoown in a more compact predicate-logic style presentation, rather than in prose format.

b. $\lambda P_{(ed)d}.\left\langle \begin{array}{c} \lambda S_{(ed)d}.\neg past'_t S(\lambda y.words'_k(\lambda z.speaker'_x(say'_e yzxe)))(P) \\ ; \\ \lambda S_{(ed)d}.\neg past'_t S(\lambda y.one.word'_k(\lambda z.speaker'_x(\lambda x.say'_e yzxe)))(P) \end{array} \right\rangle$

Combining the sequence *maḥake:tıš wala kılmi* "I didn't say not even one word" with the indirect object *wala laḥada* "to not even one person" results in a logical form consisting of a set of sets of alternatives:

(79)

maḥake:tıš wala kılmi	**wala laḥada**
not-spoke.1s-neg not.even word	*not.even to-one*
$\mathsf{s}_{neg}/\mathsf{pp}^{\uparrow}$	$\mathsf{s}_{neg}\backslash(\mathsf{s}_{neg}/\mathsf{pp}^{\uparrow})$
	$\lambda R_{((ed)d)t}.$
(78*b*)	$\left[\left\langle \begin{array}{c} R(\lambda Q_{et}.persons'_j(Q)) \\ ; \\ R(\lambda Q_{et}.one.person'_j(Q)) \end{array} \right\rangle\right]$

$<$

s_{neg}

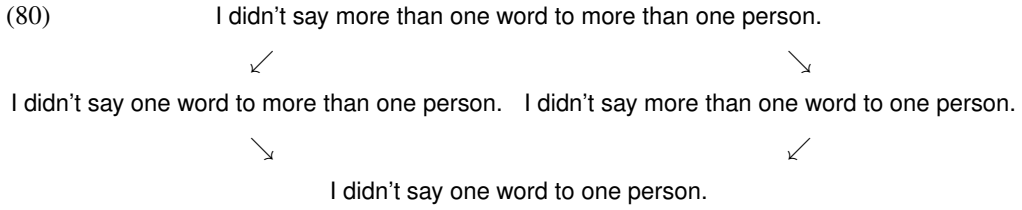
$\left\langle \begin{array}{c} \left\langle \begin{array}{c} \neg past'_t persons'_j(\lambda y.words'_k(\lambda z.speaker'_x(say'_e yzx))) \\ ; \\ \neg past'_t persons'_j(\lambda y.one.word'_k(\lambda z.speaker'_x(say'_e yzx))) \end{array} \right\rangle \\ ; \\ \left\langle \begin{array}{c} \neg past'_t one.person'_j(\lambda y.words'_k(\lambda z.speaker'_x(say'_e yzx))) \\ ; \\ \neg past'_t one.person'_j(\lambda y.one.word'_k(\lambda z.speaker'_x(say'_e yzx))) \end{array} \right\rangle \end{array} \right\rangle$

str

$\left\langle \begin{array}{c} \neg past'_t persons'_j(\lambda y.words'_k(\lambda z.speaker'_x(say'_e yzx))) \\ ; \\ \neg past'_t one.person'_j(\lambda y.one.word'_k(\lambda z.speaker'_x(say'_e yzx))) \end{array} \right\rangle$

The last derivational step in (79) is application of a rule str. This is intended to represent a strengthening inference in the interpretation of multiple focus items by means of a complex scalar model. Sentences like (77) contain two expressions with scalar interpretations, with the result that the interpretation of the sentence requires simultaneous consideration of two sets of alternatives. This corresponds in the derived meanings to a four-way conjunction of alternatives varying over cardinality values one' and $more.than.one'$, and forming a lattice in terms of entailment (alternatives are shown in bold):

(80)



This meaning can be strengthened to a meaning conjoining two alternatives, one with terms of higher cardinality in the focus positions (e.g., $words'$ and $persons'$ in the example), and one with singleton terms in each ($one.word'$ and $one.person'$ in the example).[18] In what follows, I show only strengthened meanings for the sake of readability.

Here I assume with Aranovich (2007) that the strengthened meaning has the force of an entailment, rather than a conversational implicature (c.f. Krifka, 1995b), because it cannot be cancelled. I demur on whether it should be considered a conventional implicature (c.f. Guerzoni and Alonso-Ovalle, 2003) or a presupposition (c.f. Lahiri, 1998; Giannakidou, 2007), or perhaps what has been referred to variously as an *assertorically-inert* or *non-asserted* entailment (c.f. Horn, 2002; Roberts, 2006; Beaver et al., 2009).[19]

[18] Strengthening can be thought of as construction of a complex scalar model, as discussed by Fillmore et al. (1988). In brief, construction of a scalar model requires that for each parameter (i.e. focused element) in the model, the set of alternatives being evaluated must maximize the contrast between the parameter's value in each alternative and that parameter's value in the asserted proposition. In the sentence in question, the focus is on the cardinality values of the argument noun phrases. The asserted proposition is *I didn't say one word to one person*, and the focused expressions are *one word* and *one person*, the alternatives to which are *more than one word* and *more than one person* respectively. The alternatives calculated by the derivation are:

i. I didn't say more than one word to one person.

ii. I didn't say one word to more than one person.

iii. I didn't say more than one word to more than one person.

iv. I didn't say one word to one person

Of these, (iii) is the most distinct from the asserted proposition (iv) because their values for the focused expressions are the most distinct: (i) has the same value as the asserted proposition for *one word*, and (ii) has the same value for *one person*.

The str rule can then be thought of as an operator returning the maximally distinct alternatives. For discussions of the interpretation of complex scales and strengthening inferences, see Fillmore et al. (1988); Israel (2001); Chierchia (2006).

[19] If it is a conventional implicature, it is one that is calculated locally (c.f. Chierchia, 2004, 2006), rather than an *expressive implicature* of the sort identified by Potts (2003), which is notable for not interacting with other meaning components of a sentence. Likewise, if it is an presupposition, it is a presupposition that can be used for introducing novel information into a discourse. This is made particularly clear by the fact that *wala*-phrases

(81) shows the same sentence derived with the two *wala*-phrases forming a constituent by means of function composition (for the sake of notation, in the following examples I show lambda-binders above rather than preceding the bodies of the lamba-terms):

(81)

wala kılmi *not.even word*	**wala laḥada** *not.even to-one*
$(\mathsf{s}_{neg}/\mathsf{pp}^{\uparrow})\backslash(\mathsf{s}_{neg}/\mathsf{np}^{\uparrow})$	$\mathsf{s}_{neg}\backslash(\mathsf{s}_{neg}/\mathsf{pp}^{\uparrow})$
$\lambda Q_{((ed)d)((ed)d)t}.\lambda P_{(ed)d}.$	$\lambda R_{((ed)d)t}.$
$\left[\left\langle \begin{array}{c} Q(\lambda W_{et}.words'k(W))(P) \\ ; \\ Q(\lambda W_{et}.one.word'k(W))(P) \end{array} \right\rangle\right]$	$\left[\left\langle \begin{array}{c} R(\lambda S_{et}.persons'j(S)) \\ ; \\ R(\lambda S_{et}.one.person'j(S)) \end{array} \right\rangle\right]$
$\mathsf{s}_{meg}\backslash((\mathsf{s}/\mathsf{pp}^{\uparrow}_{neg})/\mathsf{np}^{\uparrow})$	$<\mathbf{B}$
$\lambda Q_{((ed)d)((ed)d)t}.$	
$\left[\left\langle \begin{array}{c} Q(\lambda W_{et}.words'k(W))(\lambda S_{et}.persons'j(S)) \\ ; \\ Q(\lambda W_{et}.one.word'k(W))(\lambda S_{et}.one.person'j(S)) \end{array} \right\rangle\right]$	

The analysis is therefore able to derive the licensing requirement and the concord effect with multiple n-words.

4.2.4 Prepositions, Noun Phrases and Wala-Float

So far, scalar-*wala* in both its weak and strong forms has been treated as a determiner-like function, taking an NP meaning, and returning a function from predicate meanings to propositions. However, as discussed above, scalar-*wala* is homophonous with several other

frequently are used in existential constructions:

i. **maːfi** wala bani ʔadam bıššawaːrıʕ.
not-exist not.even son Adam in-the-streets
"There isn't a single person in the streets."

ii. zeiyma lkʊll bıʕrıf **maːfi** wala fılısṭiːni ṭılıʕ mın baladu maʕu kırš waːḥad.
like-that the-every ind.3.know not-exist not.even Palestinian left from country-his with-him penny one
"Like everyone knows, there isn't a single Palestinian who left his country with one penny in his pocket."

particles that have related semantics. Is there independent evidence for treating scalar-*wala* as a determiner-like particle?

In this section, I consider syntactic arguments involving constituency and word order that show that scalar-*wala* combines directly with its associate. However, I note that scalar-*wala* has freer word order possibilities than do other more typical determiners such as *ʔaiy* "any, which," *kʊll* "every, all, each," *baʕḍ* "some (of)," and others, a property that it shares with the scalar focus particle *ḥɪtta* "even." I conclude that scalar-wala, like *ḥɪtta*, has a polymorphic syntactic type related to the syntactic type associated with the conjunction *wa-* "and," to which *wala* is related etymologically, and which allows freer word order.

When scalar-*wala* is combined with a prepositional phrase or a "construct state" possessive noun phrase, variations in word order arise. However, scalar-*wala* can either combine directly with the object of the preposition, or — more commonly — combine with the whole prepositional phrase. I refer to this phenomenon as "wala-float," since the wala seems to "float" away from its associate.

For example, in (82b) *wala* "floats" past the comitative preposition *maʕ* "with," while in (83b) it floats past the dative prepositon *l-* "to, for":

(82) a. maḥakeːt maʕ **wala** **waːḥad** fiːhʊm.
not-spoke.1s with not.even one in-them.mp
"I didn't speak with even one of them."

b. maḥakeːt **wala** maʕ **waːḥad** mɪnhʊm.
not-spoke.1s not.even with one in-them.mp
"I didn't speak even with one of them."

(83) a. maḥaketː kɪlmi la**wala** **waːḥad** fiːhʊm.
not-spoke.1s word.fs to-not.even one in-them
"I didn't say a word to even one of them."

b. maḥakeːt kɪlmi **wala** la**waḥad** fiːhʊm.
not-spoke word.fs not.even to-one in-them
"I didn't say a word even to one of them."

Wala-float also occurs with construct-state possessive noun phrases. A *wala*-particle associated with the inner noun phrase in the construct (84a) can "float" past the "outer" noun to precede the whole construct (84b):

(84) a. ʔɪbn **wala** **waːḥad** mɪnhʊm
son not.even one from-them
"the son of not even one of them"

b. **wala** ʔɪbɪn **waːḥad** mɪnhʊm
not.even son one from-them
"not even the son of one of them"

(85) a. maʕɪrɪft [$_{NP}$ ʔɪsm **wala** **waːḥad** mɪnhʊm].
not-knew.1s name not.even one from-them
"I didn't know the name of **even one** of them."

b. maʕɪrɪft **wala** [$_{NP}$ ʔɪsm **waːḥad** mɪnhʊm].
not-knew.1s not.even name one from-them
"I didn't know **even** the name of **one** of them."

(86) a. mašʊftš [$_{NP}$ ʔɪbɪn **wala** **waːḥad** mɪn ʔaχwaːnak] bɪlʕʊrṣ.
not-saw.1s-neg son not.even one from brothers-your.ms in-the-wedding
"I didn't see the son of **even one** of your brothers at the wedding."

b. mašʊftš **wala** [$_{NP}$ ʔɪbɪn **waːḥad** mɪn ʔaχwaːnak] bɪlʕʊrṣ.
not-saw.1s-neg not.even son one from brothers-your.ms in-the-wedding
"I didn't see **even one** of your brothers' sons at the wedding."

These examples are a problem for the analysis so far because they show *wala* floating out of prepositional phrases and out of possessive NPs, which are "strong" islands, resisting extraction of any kind.

For example, prepositions cannot be stranded in interrogative clauses: they must either be *pied-piped* with the question word, or they must host a resumptive pronoun bound by the question word:

(87) a. **maʕ miːn** ḥakeːti?
with who spoke.2fs
"With whom did you speak?"

b. **miːn** (ʔɪlli) ḥakeːti maʕ**u**?
who rel spoke.2fs with-him
"Who [was it that] you spoke with him?"

c. * **miːn** ḥakeːti maʕ?
who spoke.2fs with
"Who did you speak with?"

Likewise, no extraction is possible out of possessive NPs, the whole possessive NP having to be pied-piped, or the possessor NP being resumed by a resumptive pronoun:

(88) a. **bɪnt miːn** bɪddak ɪtzawwɪǧ?
daughter who want.2ms 2.marry
"Whose daughter do you want to marry?"

b. **bɪnt miːn** ʔɪlli bɪddak ɪtzawwɪǧ**ha**?
daughter who rel want.2ms 2.marry-her
"Whose daughter is it that you want to marry?"

c. **miːn** (ʔɪlli) bɪddak ɪtzawwɪǧ bɪnt**u**?
who rel want.2ms 2.marry daughter-his
"Who [is it such that] you want to marry his daughter?"

Likewise, possessor NPs cannot permute with modifiers, instead following the preposition or possessee directly:

(89) a. (bɛss) **maʕ fariːd** (bɛss)
only with Fareed only
"only with Fareed, with Fareed only"

b. * maʕ bɛss fariːd
with only Fareed
"with only Fareed"

(90) a. **risaːlɪt fariːd** ɪllaʕiːna
letter.fs Fareed the-cursed.fs
"Fareed's cursed dissertation," "this cursed letter of Fareed's"

b. * **risaːlɪt** ɪllaʕiːna **fariːd**
letter.fs the-cursed.fs Fareed

In CCG terms, this implies that prepositions and possessive NPs take NP arguments by means of Baldridge's (2002) $\star$-modality, which blocks associativity or permutation in composition.

(91) a. **maʕ** "with" $\vdash (\mathsf{s}\backslash\mathsf{s})/_{\star}\mathsf{np}$

b. **ʔɪbɪm** "son of, 's son" $\vdash \mathsf{np}/_{\star}\mathsf{np}$

Accordingly, *wala*-float should be impossible.

The permutation of *wala* with the preposition or outer noun appears to correspond with a difference in the breadth of the focus associated with the particle: the word order *preposition-wala-NP* expresses narrower focus on the NP, while the order *wala-preposition-NP* expresses broader focus that can include focus on the verb. For example, (92a) has a narrow focus on *waːḥad* "one," and considers alternatives ranging over the number of people the speaker might have spoken with, while (92b), with broader focus, can consider alternatives ranging over things that the speaker did with some number of people:

(92) a. maḥakeːtɪš maʕ **wala** **waːḥad** mɪmhʊm.
not-spoke.1s-neg with not.even one from-them
"I didn't speak with even one of them."
(Alternatives: I spoke with n of them)

b. maḥakeːtɪš **wala** maʕ **waːḥad** mɪmhʊm.
not-spoke.1s-neg not.even with one from-them
"I didn't speak even with one of them."
(Alternatives: I did P with n of them)

Nonetheless, the same restrictions apply to the noun phrase associate in either case (e.g., the noun phrase must still be a singular indefinite).[20]

Wala-float only seems to happen with "functional" prepositions that are used as oblique object markers, or, to put it differently, that are used as case markers (c.f. Fillmore, 1968; Gazdar et al., 1985; Pollard and Sag, 1994; Sag and Wasow, 1999; Bresnan, 2000, a.o.). For example, *wala*-float is used by preference with the comitative preposition *maʕ* "with," the dative/benefactive preposition *l-* "to," and the instrumental or locative *bi* "with, in," and is possible (but not as preferred) with the locative *fiː* "in" and allative *ʕala* (or its reduced enclitic form *ʕa-*) "to, towards, against":[21]

(95) i. Comitative *maʕ* "with"

ii. Dative, benefactive *l-* "to, for"

iii. Instrumental, locative *b-* "in, with"

iv. Locative *fiː* "in, about"

v. Allative *ʕala* "to, towards, against" (or its reduced enclitic form *ʕa-*)

vi. Ablative/Adversative *mɪn* "away from, from, part of"

Wala-float is not used with predicative or substantive prepositions (ones that describe actual locations or spatial relationships), such as *tɪḥ̩ɪt* "under, underneath," *foːq* "above, on top of," *ǧɛnɪb* (or *ǧɛmb* "next to," etc.

[20]I conjucture that it is mostly a prosodic phenomenon: the wala-preposition-noun sequence has an even trochaic rhythm (93a, 94a), while the preposition-wala-noun sequence is uneven (93b, 94b).

(93) a. [ˈwa.la maʕ ˈwaː.ḥ̩ad]

b. [maʕ ˈwa.la ˈwaː.ḥ̩ad]

(94) a. [ˈwa.la ˌʔɪbɪn ˈwaː.ḥ̩ad]

b. [ˌʔɪbɪn ˈwa.la ˈwaː.ḥ̩ad]

It also may be related to the prosody of the construct state. Most Arabic prepositions are etymologically derived from noun stems, and hence form a close prosodic unit with their objects, often to the extent that the preposition is a proclitic (in the case of most of the functional prepositions).

[21]These are also frequently found in phrasal-verb idioms. For example, to be "concerned about" in English is to be "concerned in" in Levantine Arabic (c.f. *ʔahtamm-yahtamm-fiː* "to be concerned about, take an interest in"), and similarly one thinks "in" rather than "about" (c.f. *fakkar-yfakkɪr-fiː* "think about") and is angry "from" rather than "at" (c.f. *zaʕal-yɪzʕal-mɪn* "to be angry at").

(96) a. magaʕadɪt [ǧɛnɪb **wala** **waḥdi**].
not-sat.1s next.to not.even one.fs
"I didn't sit next to a single woman."

b. * magaʕadɪt **wala** [ǧɛnɪb **waḥdi**].
not-sat.1s not.even next.to one.fs

This contrast between functional and predicational prepositions is easily captured in terms of type assignments. Functional case markers can be treated simply as identify functions over NP categories, returning a specification for a particular case-function, and interpreted as semantically vacuous (i.e. as identity functions):

(97) a. **l-** "to" $\vdash \mathsf{np}^{\uparrow}_{\mathsf{dat}}/_{\star}\mathsf{np}^{\uparrow} : \lambda P.P$

b. **bi** "with, in" $\vdash \mathsf{np}^{\uparrow}_{\mathsf{loc|inst}}/_{\star}\mathsf{np}^{\uparrow} : \lambda P.P$

c. **maʕ** "with" $\vdash \mathsf{np}^{\uparrow}_{\mathsf{con}}/_{\star}\mathsf{np}^{\uparrow} : \lambda P.P$

d. **ʕa-** "to, towards" $\vdash \mathsf{np}^{\uparrow}_{\mathsf{all}}/_{\star}\mathsf{np}^{\uparrow} : \lambda P.P$

Predicational prepositions, on the other hand, have relational types much like transitive verbs:

(98) a. **ǧɛnɪb** "next to" $\vdash (\mathsf{s}\backslash\mathsf{np})/_{\star}\mathsf{np} : \lambda y.\lambda x.[next.to'yx]$

b. **tɪḥɪt** "below, under" $\vdash (\mathsf{s}\backslash\mathsf{np})/_{\star}\mathsf{np} : \lambda y.\lambda x.[under'yx]$

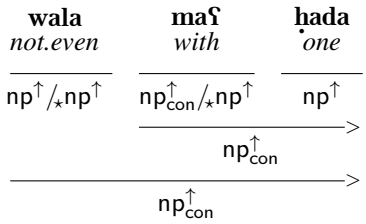
Given these types, *wala*-float is simply a function of the fact that functional PPs are still noun-phrases, albeit ones with overt "case" morphology (I suppress semantic representations in the following derivations since the concern here is with syntactic composition).[22]

(99) a.

maʕ *with*	**wala** *not.even*	**ḥada** *one*
$\mathsf{np}^{\uparrow}_{\mathsf{con}}/_{\star}\mathsf{np}^{\uparrow}$	$\mathsf{np}^{\uparrow}_{ind.sing}/_{\star}\mathsf{np}^{\uparrow}_{ind.sing}$	$\mathsf{np}^{\uparrow}_{ind.sing}$
	$\xrightarrow{\quad}\ \mathsf{np}^{\uparrow}_{ind.sing}$	
$\xrightarrow{\quad}\ \mathsf{np}^{\uparrow}_{\mathsf{con},-\mathsf{def},-\mathsf{plur}}$		

[22] An alternative might be to define a category supertype that includes both proper noun phrases and functional prepositional phrases.

b.



Note that Levantine Arabic does not allow preposition stranding (100a). Instead, extraction of the object of a preposition requires either "pied-piping" of the entire prepositional phrase (100b), or use of a resumptive pronoun in the object position of the preposition (100c):

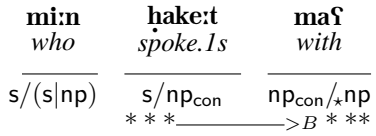
(100) a. * ʔɪnta **miːn** ḥakeːt **maʕ**?
you.ms who spoke.2ms with

b. ʔɪnta **maʕ miːn** ḥakeːt?
you.ms with who spoke.2ms
"With whom did you speak?"

c. ʔɪnta **miːn** (ɪlli) ḥakeːt maʕ**u**?
you.ms who rel spoke.2ms with-him
"Who [is it that] you spoke with [him]?"

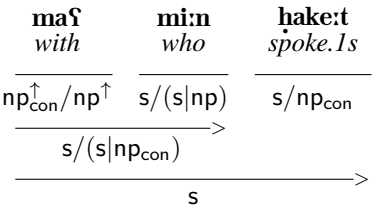
Following Baldridge (2002), this follows if prepositions are assigned syntactic categories decorated with the ⋆-modality, blocking application of the function composition (B >) rule as in (101):

(101)

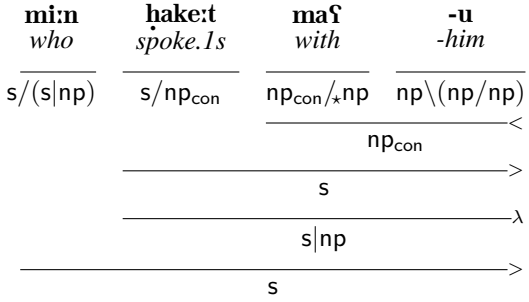


Instead, as was discussed in Ch.2, the whole prepositional phrase must be "pied-piped" (102a), or the fronted question-word must bind a resumptive pronoun in the object position of the preposition (102b):

(102) a.

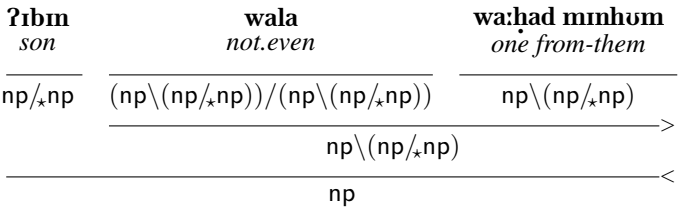


b.

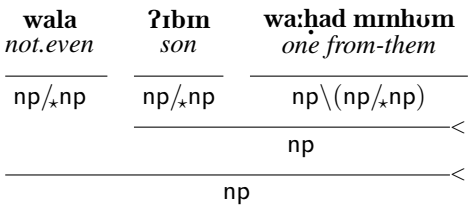


The same considerations apply to wala-float out of construct-state possessive noun phrases. The construct rule in (16, p.71) assigns the outer noun the type of a function decorated with the ⋆-modality.

(103) a.



b.



Note, however, that most determiners cannot "float" away from the nouns they modify. For example, the demontratives *hæːða* "this," the quantifiers *kʊll* "every, each, all," or numeral quantifiers such as *θalæːθa* "three" cannot float:

(104) a. maʕ **hæːða ššabb**
with this.ms the-boy

"with this boy"

b. * **hæːða** maʕ **ɪššabb**
this.ms with the-boy

(105) a. maʕ **kʊll wa:ḥad**
with every one
"with every one," "with each one"

b. * **kʊll** maʕ **wa:ḥad**
every with one

(106) a. maʕ **θlæːθi mɪmhʊm**
with three from-them
"with three of them"

b. * **θlæːθi** maʕ **mɪmhʊm**
three with from-them

Determiner float is possible with *kʊll*, but requires *kʊll* to host a pronoun resuming the referent, or to be marked with the definite article:

(107) a. ʔana baḥɪbb**kʊm** ktiːr **kʊllkʊm**.
I ind.1s.love-you.p much all-you.mp
"I love you very much, all of you."

b. ʔana baḥɪbb**kʊm** ktiːr **ɪlkʊll**.
I ind.1s.love-you.p much the-all
"I love you all very much."

c. * ʔana baḥɪbb**kʊm** ktiːr **kʊll**.
I ind.1s.love-you.p much all

In other words, determiners are generally well behaved and consistent with an analysis in which they form tightly coherent constituents with the nouns they modify. This suggests that perhaps the ⋆-modality should be assigned to determiners. For example, the determiners *kʊll* "every, each, all," *hæːða* "this (ms.)," and *θalæːθa* "three" would have the following syntactic category:

(108) **kʊll**, **hæːða**, **θalæːθa**⊢ $np^{\uparrow}/_{\star}np$

One might then suggest that *maʕ* does not combine with its object by means of the ⋆-modality, and an alternate explanation has to be found for the failure of extraction out of its object position. Of course, this discussion is predicated on the assumption that scalar-*wala* is a determiner, and that it selects a singular indefinite NP complement. This assumption is motivated by the observation that scalar-*wala* can only associate with singular indefinites (this was captured above by assuming that the syntactic category for scalar-*wala* takes an argument marked with a negative value for a definiteness feature (see 66, p.137 and 72, p.141).

It is interesting to note here that NP-wala has similarities in its distribution and in aspects of its interpretation with **ḥɪtta** "even," a scalar focus particle very much like English *even* and which has a polarity-sensitive intepretation. When *ḥatta* is associated with a singular indefinite NP pronounced with contrastive focus, its interpretation is virtually undistinguishable from the interpretation of *wala*. In fact, the two can be used together for more emphasis:

(109) a. mašʊftš **wala** waːḥad.
not-saw.1s-neg not.even one
"I didn't see even one person."

b. mašʊftš **ḥatta** waːḥad.
not-saw.1s-neg even one
"I didn't see even one person."

c. mašʊftš **wala** **ḥatta** waːḥad.
not-saw.1s-neg not.even even one
"I didn't see NOT EVEN ONE person!"

Like *wala*, *ḥɪtta* "even" can "float" away from its associate:

(110) a. maḥakeːtɪš maʕ **ḥatta waːḥad**.
not-spoke.1s-neg with even one

"I didn't speak with even one person."

b. maḥakeːtɪš **ḥatta** maʕ **waːḥad**.
not-spoke.1s-neg even with one
"I didn't speak even with one person."

This is in contrast to the polarity-sensitive determiner *ʔaiy* "which, any." As was noted above, *ʔaiy* overlaps with *wala* and *ḥɪtta* in aspects of its interpretation, and can be used in tandem with either.

Nevertheless, *ʔaiy* is like other well-behaved determiners in that it cannot float away from its NP complement:

(111) a. maḥakeːtɪš maʕ **ʔaiy waːḥad** mɪnhʊm.
not-spoke.1s-neg with any one from-them
"I didn't speak with ANY one of them."

b. * maḥakeːtɪš **ʔaiy** maʕ **waːḥad** mɪnhʊm.
not-spoke.1s-neg any with one from-them

I conclude that scalar-*wala* (like *ḥɪtta*) has selectional properties that differ from those of other determiners.

4.2.5 *Wala*-Phrases as Sentence Fragments

In Chapter 5, I argue that *wala*-phrases contribute negative meaning in sentence fragments Giannakidou (2000, 2002) and Watanabe (2004). Therefore, I am obliged to provide some account of how n-words are used and interpreted in fragment answers.

However, the analysis of n-words in sentence fragments and other elliptical constructions entails the existence of a theory of elliptical constructions in CCG. I am not aware that such a theory exists. As such, in order to be able to talk about the use of n-words as fragments, I have made some assumptions in Ch.2 about the grammar of sentence fragments in CCG, in the hope it will be understood that these are intended as place-holders for

a more adaquate and thoroughly motivated account.[23]

As discussed in Ch.2, I assume that fragment answers are function types, and that the questions should be represented as having syntactic structure. For example, (112) shows the use of *wala iši* "not one thing" in answer to the question *šu ʔɛkalti?* "What have you eaten?":

(112) Q: šu ʔɛkalti?
what ate.2fs
"What have you eaten?"

A: wala iši.
not.even thing
"Not one thing, not a single thing"

According to the assumptions made in Ch.2, the syntactic structure of (112A) would be as follows:

(113)

šu ʔɛkalti	**wala iši**
what ate.2fs	*not.even thing*
$\mathsf{s/np}^{\uparrow}$	$\mathsf{s\backslash(s/np}^{\uparrow}\mathsf{)}$
$\lambda R_{(ed)d}.[R(\lambda y.\mathsf{you}_x\ \mathsf{ate}_e\ y)]$	$\lambda Q_{((et)t)\langle dd\rangle}.\left\langle \begin{array}{c}\mathsf{not}\ Q(\lambda Y_{et}.\mathsf{more\ than\ one}_k\ \mathsf{thing}_k(Y)) \\ ; \\ \mathsf{not}\ Q(\lambda Y_{et}.\mathsf{one}_k\ \mathsf{thing}_k(Y))\end{array}\right\rangle$
	$<$
s	
$\left\langle \begin{array}{c}\mathsf{you}_x\ \mathsf{didn't\ eat}_e\ \mathsf{more\ than\ one}_k\ \mathsf{thing}_k \\ ; \\ \mathsf{you}_x\ \mathsf{didn't\ eat}_e\ \mathsf{one}_k\ \mathsf{thing}_k\end{array}\right\rangle$	

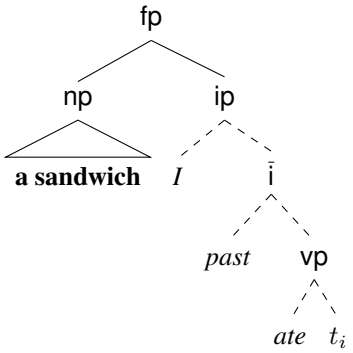
Note that the type assumed here is strong-*wala*. Having claimed that there are two variants of scalar-*wala*, the question is then which of these is used in fragments, and how can one tell? Is there independent evidence that a *wala*-phrase used as a fragment is necessarily headed by strong-*wala*. Or could it also be weak-*wala*?

[23]There are analyses of some ellipsis phenomena, such as *antecedent-contained deletion* (c.f. Jacobson, 1992), sluicing or other kinds of ellipsis in which an ellipse is understood as having an explicitly pronounced antecedent. I am not aware of any analysis of the use of sentence fragments in CCG.

Answering this question adaquately is beyond the scope of this project, because doing so would rely on evidence from the prosody of fragment answers and their full-clause paraphrases. So, again, I will make provisional assumptions, further consideration of which will have to wait for future work. I assume that, in principle, either strong- or weak-*wala* can be used in a fragment. I assume this because I currently see no strong arguments for assuming otherwise.

Movement-based analyses of fragments (c.f. Merchant, 2004) claim that fragments are ellipsis remnants, meaning that they move to a left-peripheral position in the clause, followed by ellipsis of the constituents out of which they have been moved. For example, the fragment answer *a sandwich* used in answer to the question *What have you eaten today?* is claimed to have raised to a left-peripheral position in a clause, followed by deletion (or complete prosodic reduction) of the IP-constituent from which it was extracted (ellipsis is indicated with italic leaf-nodes and dashed branches):

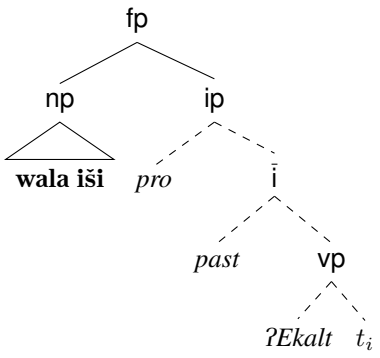
(114)



Merchant makes this claim based on the presence of connectivity effects of the kind discussed in Ch.2, as well as the generalization that fragment answers show a kind of island-sensitivity, as well as binding effects. In other words, the claim is that fragment answers are derived as a kind of focus-movement, exactly paralleling wh-movement. Both focus-movement and wh-movement can then be followed by deletion/reduction of the constituent containing the extraction site.

Applying this analysis to the answer in (112) gives the following derivation:

(115)



According to the analysis, the *wala iši* "not one thing" contains strong-*wala* in a topical position because it does not require licensing. The claim that is made by the fronting analysis is therefore that only strong-*wala*-phrases can be used as fragments.

Nonetheless, without further justification it is not clear that this claim should be made for Levantine Arabic, nor would it resolve the ambiguity issue, because, as was discussed above, both strong- and weak-*wala* phrases can be fronted. Furthermore, although Levantine Arabic speakers use fronting by preference for question formation, question words can also be used *in-situ* (i.e., without fronting):

(116) a. ʔɪnti **ʔeːš** ʔɛkalti lyoːm?
you.fs what ate.2fs the-day
"What did you eat today?" (Fronting)

b. ʔɪnti ʔɛkɛlti **ʔeːš** ɪlyoːm?
you.fs ate.2fs what the-day
"You ate what today?" (In-Situ)

(117) a. ʔɪnta **miːn** šʊft ɪlyoːm?
you.ms who saw.2ms the-day
"Whom did you see today?" (Fronting)

b. ʔɪnta šʊft **miːn** ɪlyoːm?
you.ms saw.1s who the-day
"You saw whom today?" (In-Situ)

(118) a. θæːniyyan, **maʕ miːn** ḥakeːt ɪklæːm mu kwayyɪs ʕannak?
second with who spoke.1s talk not good about-you.ms
"Second, with whom did I speak bad talk about you?" (Fronting)

b. gʊlli ḥakeːt **maʕ miːn** ʕanni?
tell-to-me spoke.2ms with who about-me
"Tell me, you spoke with whom about me?" (In-Situ)

This indicates that question formation does not correlate as strongly with fronting of questions as is the case in English.

Nonetheless, the fronting analysis would be consistent with the coherence presupposition associated with the use of fragment answers, which is that the answer must be *congruent* with the most current question under discussion.(c.f. Roberts, 1996; Büring, 1997; Schwarzschild, 1999; Kadmon, 2000; Krifka, 2001; Nelken and Shan, 2006; Beaver and Clark, 2008) An answer A to a question Q is congruent (roughly speaking) if A provides at least a partial answer to Q. This requirement corresponds closely to the presupposition that I attribute in Ch.6 to the use of topical *wala*-phrases, and it might be tempting to treat the coherence presupposition associated with fragment answers and the relevance presupposition associated with topics as the same phenomenon.

It might be objected that fragment answers can have existential (in the sense of "all new") interpretations, and that topical noun phrases cannot. For example, (119A1), the meaning of which can be paraphrased by a full existential sentence (119A2):

(119) Q: ʔana mayyɪt mɪn ɪlǧuːʕ. šu fiː ʔɛkɪl?
I dead from the-hunger what exist food
"I'm starving. What [is] there [for] food?"

A1: wala iši.
not.even thing
"Not a thing."

A2 maːfi wala iši.
not-exist not.even thing

"There isn't a single thing."

The fact that (119A1) shows a *wala*-phrase being used as a fragment answer and having an all-new interpretation might then be taken to counter-indicate the fronting analysis of fragments.

However, examples can be found in which even *wala*-phrases that are the subjects of existential sentences can be fronted:

(120) **wala iši** kæːn fiː bɪlbeːt.
not.even thing was exist in-the-house
"Not a thing was there in the house."

(121) **wala iši** kæːn fiː bɪṣṣanduːʔ.
not.even thing was exist in-the-box
"Not a thing was there in the box."

This indicates that an existential, all-new interpretation is available for strong-*wala* noun phrases.

As such, I take the evidence currently available to be inconclusive. A more adaquate analysis would have to take into consideration the intonation patterns that are used in fragment answers, and whether those intonation patterns coincided with the intonation patterns used with *wala*-phrases in different positions in full clauses. For now, I assume that the fronting analysis is correct, and that when a *wala*-phrase is used as a fragment answer, that it is strong-*wala* that is being used.

4.3 *Never*-words

The "*never*-words" are expressions that can felicitously be translated as English *never* or *not at all*:

(122) a. **ʔabadan** "never, not at all," etymologically derived from the Old Arabic adverbial-accusative form of the noun *ʔɛbd* "eternity," in meaning "forever, for all eternity";[24]

[24]In Classical Arabic, *ʔɛbadan* could also be used to mean "eternally, forever." Its negative use, it was used

b. **bilmarra** (or **min marra** in some varieties of Palestinian) "never, not once," derived from a prepositional phrase headed by *b-* "with, in" and *ɪlmarra* "(the) once," meaning "with the once" or "in the once," or "from the once" in the case of *mɪn marra*.

Both of the *never*-words satisfy the definition of n-words in (1i), repeated here:

(123) *N-word*: A word that can be used to express negation in a sentence fragment.

This is because they express negation when used in fragment answers:

(124) Q: ʔɪmta bɪtχabbɪrna?
when ind.2.tell-cl1s
"When will you tell us?"

A: **ʔɛbadan**.
never
"Never."

(125) Q: bɪtdaχχɪn?
ind.2.smoke
"Do you smoke?"

A: **bɪlmarra**.
never
"Never."

When used in a full clause, *never*-words cannot express negation by themselves, and instead must be licensed by a negation morpheme, regardless of their positions within the word order of the clause. They must be licensed following the verb or tensed predicate in the clause (126):

(126) a. **maːfi** ʔaiy mʊškila **ʔɛbadan**.
not-exist which problem never
"There isn't a problem ever."

to mean "never in the future," *lɛn ʔazʊra ʂʂiːn ʔɛbadan* "I will never visit China." A different word, *qaṭʕan*, was used to express "never" with respect to the past: *lɛm ʔazuːr ʂʂiːn qaṭʕan* "I have never visited China."

b. * fiː ʔaiy mʊškila **ʔɛbadan**.
exist which problem never

(127) a. ɪlbɪsiːna, **maː**baḥɪbbhæːš **bɪlmarra**.
the-pool, not-ind.1s.like-her never
"The swimming pool, I don't like it at all."

b. * ɪlbɪsiːna, baḥɪbbhæ **bɪlmarra**.
the-pool, ind.1s.like-her never

They must also be licensed when used preceding the predicate:

(128) a. **ʔɛbadan** maːfi ʔaiy mʊškila.
never not-exist which problem.fs
"There's never ANY problem."

b. * **ʔɛbadan** fiː ʔaiy mʊškila.
never exist which problem.fs

(129) a. ɪlbɪsiːna, **bɪlmarra maː**baḥɪbbhæ.
the-pool, never not-ind.1s.like-her
"The swimming pool, I don't like it AT ALL."

b. * ɪlbɪsiːna, **bɪlmarra** baḥɪbbhæ.
the-pool, never ind.1s.like-her

The distribution of *never*-words therefore follows the pattern of what has sometimes been called "strict negative concord" (Giannakidou, 2000, 2002; Zeijlstra, 2004), meaning that when they have to be licensed at all (i.e., in a full clause), they must be licensed in all positions: the licensing requirement applies to them "strictly."

Generalization 4.3. *Never*-words are *strict negative concord* items.

The *never*-words can also be paraphrased with the *wala*-phrase *wala marra* "not even once" discussed below. The two *never*-words are almost identical in usage, but differ slightly in register, with *ʔɛbadan* being slightly more formal (mostly likely because it is also used in Standard Arabic), while *bɪlmarra* (or *mɪn marra*) is strictly colloquial.

Nonetheless, the *never*-words, like English *ever* (c.f. Heim, 1984; Krifka, 1995b), don't seem to have a scalar interpretation, as has been argued to be the case for the particle *wala*. This is perhaps illustrated with a comparison with the *wala*-phrase *wala marra* "not even once," the meaning of which is very close to the meaning of the *never*-words, but which does have a scalar interpretation.[25]

For example, consider the following two sentences:

(130) a. wałłaːhi mazaʕalɪt mɪmnak **wala marra**.
by-God not-angered.1s from-you.ms not.even once
"By God, I haven't got mad at you even once."

b. wałłaːhi mazaʕalɪt mɪmnak **ʔɛbadan**.
by-God not-angered.1s from-you.ms never
"By God, I haven't got mad at you ever."

(130a) shows *wala marra* "not even once." The meaning of the sentence asserts that the speaker has not gotten angry at the addressee on even one occasion. The sentence asserts that the speaker did not get angry one time, and has a scalar meaning component that for all numbers n greater than one, it's not the case that the speaker got angry at the addressee on n occasions. To put it differently, the sentence answers the question "How many times have I gotten angry at you?"

In contrast, (130b) contains *ʔɛbadan* "never" in place of *wala marra* "not even once," and lacks the scalar implication (c.f. Krifka, 1995a). Instead, its interpretation involves consideration of a set of occasions at which the speaker might have gotten angry at the

[25] *ʔɛbadan* has another use in colloquial Levantine corresponding to "very," "a lot," or "totally":

i. ɪlǧoːw **ʔɛbadan** mʊmtæːz ɪlyoːm!
the-weather ever excellent the-day
"The weather is very/totally excellent today!"

ii. ʔana ʕɪndi mʊškila u**ʔɛbadan** bɪddi ḥall.
I at-me problem and-ever want.1s solution
"I have a problem and I really want a solution."

I do not discuss this further here.

addressee, and asserts that for any arbitrary member of that set, it's not the case that speaker did get angry at that occasion. The sentence does not imply comparison of the number of times that the speaker might have become angry, but rather comparison of various actual occasions. In this respect, *ʔɛbadan* is more like an *ʔaiy*-phrase, and might be thought of as an equivalent to the unattested *ʔaiy marra* "ANY time." It therefore appears to have a *quodlibetic* (c.f. Horn, 2005; Tovena and Jayez, 1999), *arbitrary choice* (c.f. Rullmann, 1996), or *phantom* (c.f. Israel, 1995) interpretation rather than a scalar interpretation.

The *never*-words also do not seem to have double-negation readings when used as fragments in answer to negative questions. For example, (131) and (132) show *ʔɛbadan* being used in answer to positive and negative yes-no questions respectively:

(131) Q: zʊrt suːriyya?
visited.2ms Syria
"Have you visited Syria?"

A: ʔɛbadan.
never
"Never." (i.e., "I haven't visited Syria."

(132) Q: **ma**zʊrt suːriyya?
not-visited.2ms Syria
"Have you not visited Syria?" "Haven't you visited Syria?"

A: ʔɛbadan.
never
"Never." (i.e., "I haven't visited Syria.")

In both cases, using *ʔɛbadan* as a fragment answer means "I have not visited Syria," and it does not have a double-negation reading for (132).

The question is why the use of *ʔɛbadan* lacks a double negation reading in (132). In general, the *never*-words seem to be used most frequently in answer to yes-no questions, or to questions asking "when." I assume that both kinds of questions, when asked about an episodic clause-meaning P, amount to asking "Is/was there an occasion t at which P

held?" In terms of standard approaches to question meaning (c.f. Hamblin, 1973; Hintikka, 1976; Karttunen, 1977; Groenendijk and Stokhof, 1984; Krifka, 2001),, the meaning of this question will be the pair of propositions "there was an occasion t at which P held" and "there was no occasion t at which P held."

In terms of the notation used here, this can be represented as a function from propositions to propositions (133a), or, alternately, as a function from truth-functions to propositions (133b):

(133) **Have you visited Syria?** $\vdash$

a. λp_{st}.[p=λt.[you visited Syria at t] $\wedge$ there is a time t such that $p(t)$ or there is no time t such that $p(t)$]

b. λf_{tt}.[f(*there is a time* t *at which you visited Syria*)],
where f_{tt} = $\{\lambda p.p, \lambda p.\neg p\}$

The use of *ʔɛbadan* in (131) and (132) always picks out the negative alternative in the question meaning. The question is how this works.

I assume that, unlike scalar-*wala*, the *never*-words do not contribute negative meaning, but rather select as arguments "negative clauses," which I take to be clauses marked with a morphosyntactic negation feature corresponding to a negation operator in meaning representation (c.f. Ladusaw, 1992; Guerzoni and Alonso-Ovalle, 2003). In particuar, I treat the *never*-words as being similar to English *ever* or *at all* in meaning (Heim, 1984; Krifka, 1995b), and assign them each two meaning representations, one for the *ever*-meaning and one for the *at all*-meaning.

Following Krifka (1995b), the *never*-meaning is interpreted as a function from a set of times to an existential quantifier over times, and presupposes a set of alternatives varying over a set of contextually relevant times, which I treat as a λ-term (as I did in the definitions for the meaning of *wala* above). The *not-at-all* meaning I treat as a similar function, but defined over sets of degrees or *standards of measure* (c.f. Landman, 1992) and returning an existential quantifier over degrees:

(134) a. $\textit{ʔɛbadan}_{never} \vdash \mathsf{s}_{neg}|(\mathsf{s}_{neg}/(\mathsf{s}\backslash\mathsf{s})) : \lambda P_{((td)d)d}.\left\langle \begin{array}{c} P \\ ; \\ P(\lambda p_{td}.\mathsf{ever}_t(p)) \end{array} \right\rangle$

b. $\textit{ʔɛbadan}_{at\ all} \vdash \mathsf{s}_{neg}|(\mathsf{s}_{neg}/(\mathsf{s}\backslash\mathsf{s})) : \lambda P_{((nd)d)d}.\left\langle \begin{array}{c} P \\ ; \\ P(\lambda p_{nd}.\mathsf{at\ all}_t(p)) \end{array} \right\rangle$

The types given here assume that verbs have lexical varients that select for a temporal modifier (which I refer to as a "V-Adv" type; c.f. Dowty 2003), and that *never*-words have higher types that select for V-Adv categories.

Neither the temporal nor the degree interpretations of the *never*-words are inherently negative in the sense of contributing a negation operator. Rather, they select a "negative argument" by virtue of specifying a negation feature on their arguments.

(135) a. mašʊftš fılım ʕarabi **ʔɛbadan**.
not-saw.1s film Arabic never
"I haven't even once seen an Arabic film."

b.
$$\dfrac{\dfrac{\textbf{mašʊftš fılım ʕarabi}}{\mathsf{s_{neg}}/(\mathsf{s}\backslash\mathsf{s})} \quad \dfrac{\textbf{ʔɛbadan}}{\mathsf{s_{neg}}\backslash(\mathsf{s_{neg}}/(\mathsf{s}\backslash\mathsf{s}))}}{\mathsf{s_{neg}}}<$$

not-saw.1s-neg film Arabic / *never*

$\lambda Z_{td}.Z(\lambda t.[\ \mathsf{I}_x\ \mathsf{haven't}_t\ \mathsf{see}_e\ \mathsf{one}_j\ \mathsf{Arabic}_j\ \mathsf{film}_j\ ])$: $\mathsf{s}_{neg}/(\mathsf{s}\backslash\mathsf{s})$

$\lambda Q_{((td)d)d}.Q(\lambda Y_{td}.\mathsf{ever}_t(Y))$: $\mathsf{s}_{neg}\backslash(\mathsf{s}_{neg}/(\mathsf{s}\backslash\mathsf{s}))$

$\mathsf{I}_x\ \mathsf{haven't}_t\ \mathsf{see}_e\ \mathsf{one}_j\ \mathsf{Arabic}_j\ \mathsf{film}_j\ \mathsf{ever}_t$: s_{neg}

In pre-verbal position, the *never*-words have to be licensed just as they do in the post-verbal position:

(136) a. **ʔɛbadan** mašʊft fılım ʕarabi.
never not-saw.1s film Arabic
"I have not once seen an Arabic film."

b. **ʔɛbadan** *never* — **mašʊft fɪlɪm ʕarabi** *not-saw.1s film Arabic*

$\mathsf{s_{neg}/(s_{neg}/(s\backslash s))}$: $\lambda Q_{((td)d)d}.Q(\lambda Y_{td}.\mathsf{ever}_t(Y))$

$\mathsf{s_{neg}/(s\backslash s)}$: $\lambda Z_{td}.Z(\lambda t.[\ \mathsf{I}_x\ \mathsf{haven't}_t\ \mathsf{see}_e\ \mathsf{one}_j\ \mathsf{Arabic}_j\ \mathsf{film}_j\ ])$

$\mathsf{s_{neg}}$ (>)

: $\mathsf{I}_x\ \mathsf{haven't}_t\ \mathsf{see}_e\ \mathsf{one}_j\ \mathsf{Arabic}_j\ \mathsf{film}_j\ \mathsf{ever}_t$

When used as a fragment answer, a *never*-word requires that the current question that it answers provides a negative answer, which corresponds to a syntactic category headed by a $\mathsf{s_{neg}}$:

(137) Q: zʊrt su:riyya?
visited.2ms Syria
"Have you visited Syria?"

A: ʔɛbadan.
never
"Never," "Not once."

not-visited.1s Syria — **ʔɛbadan** *never*

$\mathsf{s_{neg}/(s\backslash s)}$: $\lambda Z_{(td)d}.\neg\, Z(\lambda t.[\ \mathsf{I}_x\ \mathsf{haven't}_t\ \mathsf{visit}_e\ \mathsf{Syria}_j\ ])$

$\mathsf{s_{neg}\backslash(s_{neg}/(s\backslash s))}$: $\lambda Q_{((td)d)d}.Q(\lambda Y_{td}.\mathsf{ever}_t(Y))$

s_{neg} (<)

: $\mathsf{I}_x\ \mathsf{haven't}_t\ \mathsf{visit}_e\ \mathsf{Syria}_j\ \mathsf{ever}_t$

This might be thought of as a connectivity effect of the sort discussed in Ch.2.

Possible support for the claim that *ʔɛbadan* does not contribute negative meaning on its own might be found in the observation that it has developed a non-polar use in Levantine Arabic, according to which it means "very, exactly, just so" (an observation that, as far as I know, has not been made previously):

(138) a. ɪlyo:m ɪlǧo:w **ʔɛbadan** mʊmtæ:z!
the-day the-weather never excellent

"Today the weather is most excellent!"

b. wałłaːhi **ʔɛbadan** bɪddi ḥall.
by-God ever want.1s solution
"By God, I really need a solution!"

This use of *ʔɛbadan* appears to have developed from the "at all" meaning of the n-word,by losing its morphosyntactic association with negative meaning and retaining only its meaning as an intensifier.[26]

In sum, the discussion of *never*-words leads to the following conclusions:

(139) i. *Never*-words express — but do not contribute — negation in fragment answers.

ii. *Never*-words must be licensed in all positions in full clauses.

iii. *Never*-words, unlike *wala*-phrases, do not have scalar interpretations.

The implication is that the *never*-words are n-words only in the morphosyntactic sense that they have to combine with a negative-marked sentence. They are hence compatible with an NPI-approach to the analysis of n-words and negative concord (c.f. Laka, 1990; Progovac, 1991, 1992, 1993a; Ladusaw, 1992; Wouden, 1994; Suñer, 1995; Acquaviva, 1999; Giannakidou, 2000; Blaszczak, 2001b; Zeijlstra, 2004; Penka, 2007; Aranovich, 2007).

4.4 Negative Minimizers

The next class of expressions that satisfy the definition of n-word above are what I call *negative minimizers*. These are words that have idiomatic meanings expressing a lack of minimum quantity or minimum degree of significance:

(140) a. *hawa* "nothing" (lit. "air"; c.f. Elihay 2007)

b. *gɛšal* , *kɛšal* "nothing, not a bit, not a cent." (lit. "poverty, penury")

[26] An analogy in English might be the non-polar use of *anymore* that has developed in the Mid-West or West Coast state, and which has taken on the meaning of "nowadays, these days."

These words express negation in full sentences:

(141) a. bantaqid ɪlawḍaːʕ fɪlʊrdan liyɪmni ʕašt fiːhæ fɛtra
ind.1s.fault the-conditions in-the-Jordan to.that-me lived.1s in-her period

wbaʔrɪf ɪmnu nnæːs **mækla hawa**.
and-ind.1s.know that the-people eating.fs air

"I'm criticizing the situation in Jordan because I lived there for a time and know that the people have nothing." (lit. "the people are eating air")

b. w**bnoːkɪl hawa** foːg **ɪlhawa** ʔɪlli **mækliːnu**.
and-1p.eat air above the-air rel eating.mp-him
"...and we'll have even less than we already have." (lit. "we'll be eating air above the air that we're already eating")

(142) a. bɪsawwi **gɛšal** ʕamr diab.
ind.3.make nothing Amr Diab
"Amr Diab is worth nothing."

b. bɪddku ziyædaːtʔ bɪddku **gɛšal**.
want.2mp raises want.2mp nothing
"You want raises? You're going to get nothing." (lit. "you want nothing")

c. ʔɪntu bɪddku diːmuqraːtiyyaʔ bɪddku **gɛšal**.
you.mp want.2mp democracy want.2mp nothing
"You want democracy? You're going to get nothing."

Both derive their meaning from idiomatic usage. The first, *hawa*, literally means "air" or "wind," and is closely associated with the verb *ʔɛkal-yoːkɪl* "eat" (usually the active participle *mæːkɪl* "eating, have eaten"), in an item of hyperbole, "eating air" meaning "having eaten nothing" or "having nothing."

The second, *gɛšal*, appears to be related to or derived from the verb *qašala-yaqšilu* "to be poor, impoverished." It is used in several idioms, including the verbal formula *kašal ykaššilhʊm*, perhaps literally meaning "may poverty impoverish them," but meaning "may

they fail," as well as in an idiomatic *wala*-phrase *wala gɛšal*, meaning something like "at all":

(143) a. **kɛšal ɪkɛššalhʊm** ɪlli bɪkrahuːki.
poverty 3.impoverish-them.mp rel ind.3.hate.p-you.fs
"May they fail, those who hate you."

b. maːfi noːm **wala gɛšal**.
not-exist sleep not nothing
"I can't sleep at all," "I can't sleep or anything."

Both *hawa* and *gɛšal* can be used to express negation in fragment answers:

(144) Q: ɪlhʊnuːd, šu mæːkliːn?
the-Indians what eating.mp
"People in India, what do they have?"

A: **hawa**!
air
"Nothing!"

(145) Q: ya fariːd, šu fiː ʕɪndak mašaːri?
voc Fareed what exist at-you.ms money
"Fareed, what do you have for money?" "How much money do you have?"

A: **gɛšal**.
nothing
"Nothing"

Although *hawa* is most often used along with *mæːkɪl* "eating," the active participle of *ʔɛkal-yoːkɪl* "eat," it can also be used with other verbs or predicates, such as *ʕɪnd* "at," indicating that its negative force is not restricted to a particular idiomatic syntagm:

(146) a. ʔana kʊnt imsaǧǧɪl bimuntada θæːni, šu
I was.1s registered with-club second what
rrʊtʊb ɪlli ʕɪndhʊm? **hawa**!
the-ranks rel at-them.mp air

"I was registered with another chatroom [and] what [do] they have for rankings? Nothing!"

b. ɪlyoːm ɪlʕarab ɪlli binǰaḥu ʕɪndhʊm **hawa**.
the-day the-arabs rel ind.3.succeed.mp at-them.mp air
"Today, the Arabs who succeed have nothing."

I take this to show that the negative meaning is associated with *hawa* itself, rather than with an idiomatic phrase containing it.

Used as a negative minimizer, *hawa* always expresses negation. This is shown by the fact that if a clause containing *hawa* contains a negation morpheme, the clause necessarily has a double-negation reading:

(147) ɪlḥamdu liłłaː, ʔɪḥna **mɪš** mækliːn **hawa**.
the-Praise to-God we not eating.mp air
"Thank God, we don't have nothing." (i.e., "we have something")[27]

There is therefore no evidence that *hawa* undergoes negative concord.

Like *hawa*, *gɛšal* can be used by itself to express negation. For example, in (148), Abed asks Bilal if Bilal has any money, implying a request for some. Bilal refuses, saying (148b):

(148) a. ya bilaːl, ʕɪndak maṣaːri?
voc Fareed, at-you.ms money
"Fareed, do you have [any] money?"

b. bɪddak **gɛšal**.
want.2ms nothing
"You're getting nothing."

However, unlike *hawa*, *gɛšal*, when used within the scope of a negation morpheme, can have either a negative concord interpretation or a double negation reading. In the former

[27]Note that the double negation intepretation is $\neg\neg\exists = \exists$, rather than $\neg\exists\neg = \forall$. This indicates that there are restrictions on the scope interpretations available for *hawa*.

case, it is more typically used in a *wala*-phrase, but native speakers indicate that this is not necessary:

(149) a. mabɪddak **gɛšal**.
not-want.2ms nothing
"You're not going to get nothing." (i.e., "you're going to get something")

b. maʕɪndiːš (**wala**) **gɛšal**.
not-at-me-neg not.even nothing
"I don't have anything at all."

This indicates that *hawa* and *gɛšal* are not a perfect natural class. Instead, *gɛšal* appears to be ambiguous between a negative minimizer meaning, and between an indefinite use that is used in the *wala*-phrase *wala gɛšal*.

To capture the observation that the negative minimizers can contribute sentential negation without requiring licensing by another negation operator, I treat them as functions from verb types seeking raised arguments to verb types, and contributing negation that scopes over the verb meaning and over an nominal description applied to the verb type, as per the discussion of split-scope interpretation in 2.4 (p.51). This is illustrated for *gɛšal* by the derivation in (150c) for the predicate in example (150b):

(150) a. **hawa**, **gɛšal** $\vdash \mathsf{s\$\backslash(s\$/np^{\uparrow})} : \lambda R_{((ed)d)\ldots d}. \ldots \mathsf{do\ not}\ R(\lambda P.P\ \mathsf{anything_k}) \ldots$

b. ɪlʕarab ʕɪndhʊm gɛšal.
the-Arabs at-them nothing
"The Arabs have nothing."

c.

ʕɪndhʊm *at-them*	**gɛšal** *nothing*
$\mathsf{(s\backslash np)/np^{\uparrow}}$	$\mathsf{(s\backslash np)\backslash((s\backslash np)/np^{\uparrow})}$
$\lambda P_{(ed)d}.\lambda x.P(\lambda y.x\ \mathsf{have_e}\ y)$	$\lambda R_{((ed)d)d}.\lambda y.\mathsf{do\ not}\ R(\lambda P_{ed}.\mathsf{anything_k}(P))y$
$\mathsf{s\backslash np}$ (<)	
$\lambda x.x\ \mathsf{do\ not\ have_e\ anything_k}$	

Chapter 5

N-Words and Negative Meaning

In the previous chapter, I presented the different classes of n-words found in Levantine Arabic, discussed their meanings and syntactic distributions, and presented grammatical analyses of them. In this chapter, I motivate these analyses by looking more closely at their meaning, focusing mainly on the meaning of scalar-*wala*, which I claim to be inherently negative.

In section 5.1, I present three kinds of evidence to the effect that *wala*-phrases contribute negative meaning. Having made this argument, I then consider in section 5.2 what this means for an analysis of the licensing requirement. In particular, having claimed that *wala*-phrases are inherently negative, I am obliged to explain why they require licensing in certain configurations, and how the *concord effect* comes about.

My claim is that the licensing requirement arises when the interpretation of a *wala*-phrase entails a contradiction with the meaning of the predicate upon which the *wala*-phrase depends, a generalization that I express as an *elsewhere condition*:

(1) *Licensing Requirement*: A *wala*-phrase N dependent on a predicate P must be licensed by negation marking on P if the interpretation of N within a given context would entail a contradiction with some aspect of P. Elsewhere a *wala*-phrase need not be licensed.

5.1 *Wala*-Phrases Contribute Negative Meaning

In this section, I return to the interpretation of scalar-*wala*, and argue that it *contributes* negative meanings: it is inherently negative. The discussion focuses on the use of *wala*-phrases in elliptical constructions, because according to the definitions in Ch. 1, repeated here, expressing negation in elliptical constructions is a necessary condition for a word to be identified as an n-word:

(1) i. **N-Word**: A word that necessarily expresses the meaning of sentential negation when used as a sentence fragment.

ii. **Negative expression**: A linguistic expression (bound or free) that expresses the meaning of sentential negation.

iii. **Negative concord**: The failure of a *negative word* ("n-word") to distinctly express negation when in syntagm with another *negative expression.*

The arguments are as follows:

(2) i. When used as fragments in answer to negative questions, Levantine N-words necessarily have double-negation intepretations. An NPI-analysis would incorrectly predict them to be ambiguous between double-negative and negative interpretations.

ii. Plain NPIs cannot be used as fragment answers, while n-words (by definition) can. Recent proposals (c.f. Guerzoni & Ovalle 2003) address this by claiming that fragment answers are fronted constituents c-commanding ellided structures, and that NPIs cannot be fronted, such that they cannot be used as fragments. However, Levantine has NPIs which typically occur in the same pre-verbal position in which n-words appear, but which cannot be used as fragments. The NPI-analyses therefore make an incorrect prediction.

iii. Many NPI-analyses assume that n-words used as fragments are licensed by implicit negation operators recovered from interpretation of the ellipsis. Levantine Arabic has a class of words — *still*-words — which can have a negative interpretation from implicit negation, showing that this mechanism is at work in Levantine Arabic. However,

still-words used as fragments are ambiguous between negative and non-negative interpretations, whereas n-words are not. This shows that while an implicit negation analysis of negative meanings makes correct predictions for *still*-words, it makes incorrect predictions for n-words.

iv. Levantine Arabic *still*-words can have negative interpretations (corresponding to English *yet*) due to implicit negation, but need not, showing that implicit negation can license negative readings. N-words, in contrast, *always* have negative interpretations, indicating that an implicit-negation analysis of the negative interpretation of *still*-words does not extend to n-words.

I begin by first reviewing the environments in which *wala*-phrases are not subject to a strong licensing preference, showing them to be syntactically and semantically heterogeneous.

5.1.1 N-Words in Elliptical Constructions

Wala-phrases express negation in fragment answers:

(3) Q: šu mʊmkɪn taʕmɪli ḥɪtta tɪnǧaḥi bɪlmɪsæːg?
what can 2.do.fs in.order 3.succeed.fs with-the-driving
"What can you do to succeed at driving?"

A: **wala iši**.
not.even thing
"Not a thing."

(4) Q: maʕ miːn ḥakeːti?
with who spoke.2f
"With whom did you speak?"

A: **wala** maʕ **waːḥad** mɪnhʊm.
not.even with one from-them.mp
"Not even with one of them."

(5) Q: kæm marra ʔɪntarɪḍɪt mɪn ɪṣṣaff?
how-many occasion.fs evicted.2ms from the-class

"How many times have you been kicked out of class?"

A: **wala marra**, ɪlḥamdilla.
not.even occasion.fs Praise-God
"Not even once, thank God."

(6) Q: hæl hʊnæːk ʔɪnsæːn muʕayyɪn karahtahu fiṭufuːlatika,
Q there person specific hated.2ms-him in-childhood-gen-your.ms
walimaːða?
and-to-what
"Is there a specific person that you hated in your childhood? And why?"

A: la, **ʔɛbadan**, ɪlḥamdilla, ʔuḥɪbb kʊll ɪnnæːs.
no never praise-God 1s.love every the-people
"No, never, thank God, I love all people."

(7) Q: maʕʔuːla ḥada byɪʕrfɪk iʕṭiːhʊn raʔam tɪliːfoːnɪk?
believable.fs one ind.3.know-you.fs 3.give-them number telephone-your.fs
"Could you believe that someone who knows you would give them your telephone number?"

A: **ʔɛbadan**, **bɪlmarra**.
never never
"Never, not at all."

Likewise, as was shown in Ch. 4, Levantine n-words also express negation in what I refer to as "second-conjunct" constructions, including single-word conjuncts, and gapping constructions:

(8) a. ʔɪma (bazawwɪǧ) leːla [ʔaw **wala waḥdi**]!
either ind.1s.marry Leyla or not.even one
"Either (I marry) Leyla, or no one!"

b. ʔɪnta ʔakalt ɪkθiːr [uʔana **wala išI**]!
you.ms ate.2ms much and-I not.even thing
"You ate a lot, and I nothing!"

Both kinds of construction are often analyzed as involving elliptical interpretation, in which case they are similar to the use of n-words in fragment answers (referred to as "short answers": c.f. Reich, 2004).

Wala-phrases generally do not need to be roofed when they occur in pre-verbal (or pre-predicate) position in a clause:

(9) a. **wala ḥada** [bakat baṣmatu waːḍḥa ʔɛbadan].
not.even one was.3fs fingerprint.fs-his clear.fs never
"Not one person ever had a clear fingerprint."
"Not one person, was his finger print clear ever."

b. **wala ktæːb** ʕɪrɪft [miːn kæːn [ɪlli katabu]]
not.even book knew.1s who was rel wrote-him
"Not one book did I know who it was who wrote it."

There is an important difference between *wala*-phrases and the never-words: while *wala*-phrases in pre-predicate position are able in most cases to express negation without being roofed (9), the never-words must always be roofed in pre-predicate position (10):

(10) a. hælfɪlɪm **ʔɛbadan ma**šʊftu.
this-the-film never not-saw.1s-him
"This film, I haven't ever seen it."

b. * hælfɪlɪm **ʔɛbadan** šʊftu.
this-the-film never saw.1s-him

(11) a. ɪlbɪsiːna **bɪlmarra ma**baḥɪbbhæ.
the-pool.fs in-the-once not-ind.1s.like-her
"The swimming pool, I don't like it at all."

b. * ɪlbɪsiːna **bɪlmarra** baḥɪbbhæ.
the-pool.fs in-the-once ind.1s.like-her

I argue below that this is due to *wala*-phrases having topical interpretations, whereas never-words cannot be interpreted as topics.

The last kind of example in which n-words need not be roofed are those in which the n-word functions as a predicate nominal (or, in some cases, a predicate prepositional phrase).

(12) a. ʔılḥamdilla ʔana **wala** **waːḥad** mınhʊm liyanni raddeːt
the-praise-to-God I not.even one from-them because-I answered.1s
ʕalmawḍuːʕ.
upon-the-topic
"Thank God I'm not one of them because I replied to the thread."

b. ʔana maʕ **wala** **waːḥad** fiːhʊm.
I with not.even one in-them
"I'm not with a single one of them."

(13) a. ʔana bıṣṣaff ıssaːbıʕ kʊnt **wala** **iši** bılingliːzi, ʔarrarıt ʔinni
I in-the-class the-seventh was.1s not.even thing in-the-English decided.1s that-I
ʔatʕallam uṣʊrt ʔağmaʕ kɛlimæːt uʔaḥfaḍ ʔaiy kılmi kæːn
1s.learn and-began.1s 1s.collect words and-memorized.1s any word.fs was
yıḥkiːhæ lustæːz.
3.say-her the-professor
"I'm in the seventh class, I was nothing in English, I decided to learn and started collecting words and memorizing any word that the professor would say."

b. ʔana kʊnt **wala** **waːḥad fiːhʊm**.
I was.1s not.even one in-them.mp
"I was not one of them," "I was none of them."

c. ḥɛlwiːn bɛss ʔana kʊnt **wala** **waḥdi** mınhʊm.
nice.p but I was.1s not.even one.fs from-them
"Pretty! But I wasn't any one of them."

Three kinds of data indicate that Levantine Arabic n-words should be analyzed as contributing negative meaning as part of their lexical meaning assignment, and are against

analyses that would treat them as species of negative-polarity sensitive indefinites.[1] I present each of these arguments in turn.

Perhaps the greatest strength of analyses that treat n-words as inherently negative is that they immediately predict the fact that in language after language, n-words can be used to express negation in fragment answers, while non-negative negative polarity items cannot (Watanabe, 2004).

5.1.1.1 N-Words and Fronted NPIs as Fragments

In this subsection, I present an argument that treating n-words as non-negative polarity items makes incorrect predictions about the distribution of other non-negative polarity items in Levantine Arabic. Analyses that treat n-words as a special class of non-negative indefinite NPIs must account both for where the negative meaning comes from in fragment answers, and for why other kinds of negative polarity items (such as *ḥada* "one, someone, anyone" or *iši* "thing, something, anything," etc.) cannot be used to express negation in fragment answers (Blaszczak, 2001b; Guerzoni and Alonso-Ovalle, 2003; Zeijlstra, 2004). NPI-approaches typically account for the use of n-words in fragment answers by assuming either the presence of an "abstract" (unpronounced) negation (Ladusaw, 1992; Zeijlstra, 2004), or that negation can be recovered contextually from the interpretation of the ellipse (Giannakidou, 2000, 2002).

For example, the question in (14-Q) can be answered either with a full clause containing an n-word or weak NPI (14-A1), or with the *wala*-phrase fragment in (14-A2). According to NPI-analyses, (14-A2) would have a syntactic structure as in (14a) in which an negation operator is interpreted as part of the elliptical structure from which the *wala*-phrase is extracted:[2]

[1] The "NPI-analysis": c.f. Laka (1990); Progovac (1991, 1992, 1993b, 2000); Ladusaw (1992); Benmamoun (1995, 1997); Przepiórkowski and Kupść (1997a,b, 1999); Przepiórkowski (1999a,b, 2000); Blaszczak (1998, 2001b); Ouhalla (1997); Guerzoni and Alonso-Ovalle (2003); Zeijlstra (2004), a.o.

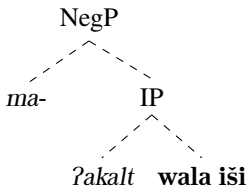
[2] For illustration, we show ellided structure uses dotted branches and italicized labels. Solid branches and bold-faced words indicate pronounced structure.

(14) Q: ya fariːd, šu ʔɛkalt ɪlyoːm?
voc Fareed what ate.2ms the-day
"Fareed, what did you eat today?"

A1: maːkalt **wala iši** lyoːm.
not-ate.1s-neg not.even thing the-day
"I didn't eat even one thing today."

A2: **wala iši**.
not.even thing
"[I ate] Not one thing," "[I ate] Nothing."

a.



This incorrectly predicts that "plain" NPIs such as English *anyone* or *anything* or Levantine Arabic *ḥada* "(any)one" or *iši* "(any)thing" will have NPI interpretations in fragments.

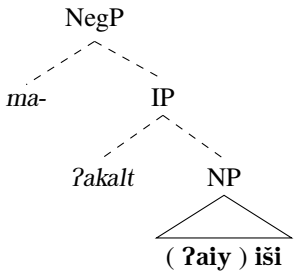
For example, the question in (15) can also be answered with a full clause containing either a polarity-sensitive indefinite pronoun (15-A1), possibly with the more emphatic NPI-determiner *ʔaiy* "any." However, a weak NPI cannot be used as a fragment answer (15-A2), as would be predicted by the structure in (15a), parallel to (14a):

(15) Q: ya fariːd, šu ʔɛkalt ɪlyoːm?
voc Fareed what ate.2ms the-day
"Fareed, what did you eat today?"

A1: maːkalt (**ʔaiy**) **iši** lyoːm.
not-ate.1s-neg any thing the-day
"I didn't eat anything (ANYthing) today."

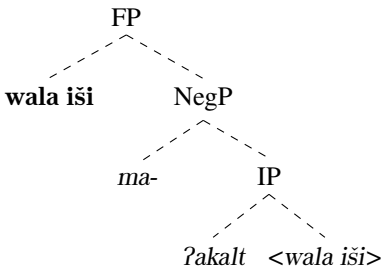
A2: * (**ʔaiy**) **iši**.
any thing
"[I didn't eat] anything."

a.



Guerzoni and Alonso-Ovalle (2003), advocates of an NPI analysis, respond by arguing that NPIs cannot express an NPI interpretation in fragments because they can't be fronted, and that fragment answers involve ellipsis of a clausal constituent within the scope of a fronted constituent (c.f. Merchant 2000). In other words, they argue that the derivation of (14-A2) should be as in (16), rather than as in (14a):

(16)



They further claim that weak NPIs cannot be fronted, and hence would be "stranded" within the ellipsis as in (15a), disallowing their use as fragments.

In fact, the weak NPIs *iši* "thing, anything, something" and *ḥada* "person, someone, anyone" cannot be fronted in root clauses, at least with the NPI interpretation:

(17) a. **ma**šʊftʊ**š** (ʔaiy) **ḥada**.
not-saw.1s-neg any one
"I didn't see anyone."

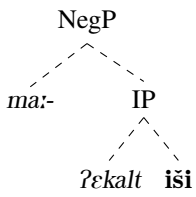
b. * (ʔaiy) **ḥada** mašʊft / mašʊftu.
any one not-saw.1s not-saw.1s-him

This might be taken to support Guerzoni and Alonso-Ovalle's argument.

To see how this is, assume for argument's sake the structure in (16) as an analysis of answer A2 in (15). The claim would be that the fact that *wala*-phrases can be fronted

allows them to be used as fragment answers. In contrast, *iši* cannot be fronted, as shown in the structure in (15a), and hence ellipsis of the IP constituent would entail ellipsis of *iši* as well, ruling out its use as a fragment.

(18)



Guerzoni and Alonso-Ovalle therefore predict that if there were a non-n-word NPI that could be fronted in Levantine Arabic, that it should be usable as a fragment with an NPI interpretation.

Levantine Arabic does in fact have at least one kind of NPI that not only can be fronted, but which is typically pronounced in a pre-verbal position. This is the aspectual adverb ʕʊmr "ever," which typically precedes the finite verb in a clause, and can either precede negation marking (19a), or host it (19b).[3]

(19) a. **ʕumri maː**šʊft iši zeiy heːk.
ever-my not-saw.1s thing like this.ms
"I haven't ever seen anything like this."

b. **maʕʊmriːš** šʊft iši zeiy heːk.
not-ever-my-neg saw.1s thing like this
"I haven't ever seen anything like this."

Less commonly it can follow the verb (20):

(20) a. mašʊft **ʕʊmri** waːḥad mɪn hænnoːʕ.
not-saw.1s ever-I one from this-the-kind
"I haven't ever seen one of this kind."

b. ʔana masɪmʕɪt **ʕʊmri** hælkalæːm.
I not-heard.1s ever-I this-the-talk

[3]This particle has as its etymological source the homophonous noun ʕʊmr "age, life." As an adverb, it is used either in its bare form, or hosting a clitic pronoun corresponding to the subject of the clause.

"I haven't ever heard this talk."

ʕʊmr has the distribution of a typical weak NPI (using Zwarts' 1996 term; see also Kadmon and Landman, 1993; Wouden, 1994; Krifka, 1995a, a.o.), appearing in questions (e.g., 21a), in antecedents of conditional clauses (e.g., 21b), restrictions of strong quantifiers (e.g., 21c), and other positions in which weak NPIs (such as *ḥada* "thing, anything," *iši* "thing, anything," or ʕʊmr "ever") can typically appear (c.f. Klima, 1964; Fauconnier, 1975; Ladusaw, 1979; Hoeksema, 1983; Linebarger, 1987; Kadmon and Landman, 1993; Zwarts, 1996; Lahiri, 1998; von Fintel, 1999; Szabolsci, 2004):

(21) a. ʔɪnta **ʕʊmrak** ʔakalt ɪrroːz uḥaliːb bɪṭṭariːʔa lfɪlɪsṭiːniyya?
you.ms ever-you.ms ate.2ms the-rice and-milk with-the-way.fs the-Palestinian.fs
"Have you ever eaten rice and milk in the Palestinian way?"

b. [ʔɪza **ʕʊmri** zaʕalt ḥada mɪn ɣeːr ʔaṣd]
if ever-I angered.1s one from other intention

baʔaddɪmlu ʔaḥla warda maʕ kɪlmɪt ʔæːsɪfa.
ind.1s.offer-to-him sweetest rose with word apology

"If I ever make someone angry without meaning to, I'll offer him the nicest rose with a word of apology."

c. waʔɪlli bɪð̩allu baštri biːhʊm sayyaraːt
and-rel ind.3.remain.p ind.1s.buy with-them.mp cars

ubawazaʕ ʕakʊll [waːḥad **ʕʊmri** šʊftu].
and-ind.1s.distribute to-every one ever-I saw.1s-him

"...and those that remain, I'll buy cars with them, and distribute to every one that I ever see."

I conclude, therefore, that ʕʊmr is a weak NPI.

ʕʊmr not only can appear in pre-verbal position, but is in overlapping distribution with the *never*-words. This is shown by the fact that they can alternate with one another (22) or co-occur in varying order (23):

(22) a. **bɪlmarra maːš**ʊft iši zeiy heːk.
in-the-time not-saw.1s thing like this.ms
"I haven't ever seen anything like this."

b. **ʔɛbadan mašʊft** ṣawar bɪlɪǧmaːl urruːʕa hæði.
never not-saw.1s picture with-the-beauty and-the-pleasingness this.fs
"I never have seen picture as beautiful and pleasing as this."

c. **ʕʊmri maːš**ʊft iši zeiy heːk.
ever-my not-saw.1s thing like this.ms
"I haven't ever seen anything like this."

(23) a. ʔana **ʔɛbadan ʕʊmri** mağaraḥɪt insæːn.
I never ever-my not-injured.1s person
"I have never ever hurt a person."

b. ʔana **ʕʊmri ʔɛbadan** maːkuːn zaʕlæːna mɪnnak.
I ever-my never not-1s.be angry.fs from-you.ms
"I will never ever be angry at you."

c. **ʕʊmri ʔɛbadan** maːzʕalu wala ʔaḥaːwɪl azʕalu.
ever-I never not-1s.anger-him not 1s.try 1s.anger-him
"I never ever make him angry, nor do I try to make him angry."

These data indicate that *ʕʊmr* and the *never*-words occupy the same position.

ʕʊmr is therefore exactly the kind of word that Guerzoni and Alonso-Ovalle predict should be able to be used in fragment answers with an NPI interpretation: it has the semantics of a weak NPI, and it can be fronted to the same pre-verbal positions that n-words can occupy. However, the prediction is incorrect: *ʕʊmr* is just as unacceptable in fragment answers as are the other weak NPIs *iši* "thing, anything" and *ḥada* "person, anyone":

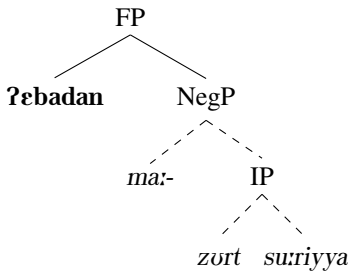
(24) Q: ya fariːd, zʊrt suːriyya?
voc Fareed visited.2ms Syria
"Fareed, have you visited Syria?"

A1: **ʔɛbadan / bɪlmarra / wala marra**.
never in-the-once / not.even once
"Never," "Not once."

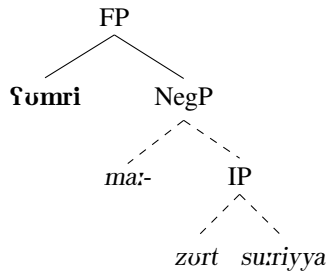
A2: * **ʕʊmri / ʕʊmr**.
ever-my ever

If (25a) is a derivation for the acceptable (24-A1), allowing the use of *ʔɛbadan* in a fragment answer, then the derivation in (25b) for (24-A2) should be equally acceptable, which it is not:

(25) a.



b.



This shows that n-words and weak NPIs are not distinguished in terms of whether they can be fronted or not, and hence their different degrees of acceptability as fragment answers cannot be reduced to this difference. However, an analysis which treats n-words as contributing negative meaning and *ʕʊmr* as not doing so predicts the contrast.

5.1.1.2 Negative Meaning and Negative Questions

Another data point in favor of inherent-negation analyses is the interpretations that n-words have when used in answer to negative questions: in such utterances they necessarily have double-negation interpretations.

For example, the question-answer pair in (26) shows an n-word used in response to the question "What did you eat?" and having a necessarily negative answer:

(26) Q: ya fariːd, šu ʔɛkalt?
voc Fareed what ate.2ms

"Fareed, what did you eat?"

A: **wala iši** (ʔana maːyɪt mɪn ɪlǧuːʕ)!
not.even thing I dead from the-hunger
"Not even one thing (I'm starving!)."

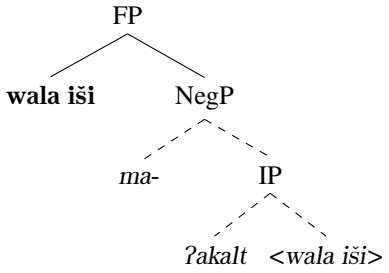
In constrast, (27) shows an n-word used in answer to the negative question "What didn't you eat?" and necessarily having a double-negation reading:[4]

(27) Q: ya fariːd, šu maːkɛlt?
voc Fareed what not-ate.2ms
"Fareed, what didn't you eat?"

A: **wala iši** (ʔana šuʕbaːn ǧɪddan).
not.even thing I satisfied seriously
"Not even one thing. I'm really full!"
(i.e., "There isn't even one thing that I didn't eat.")

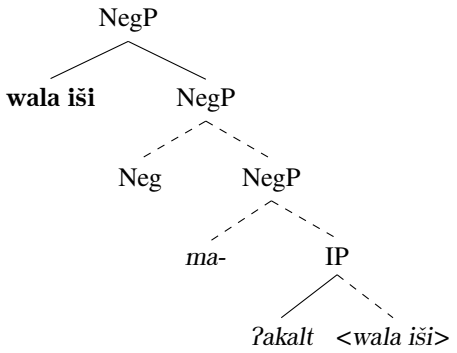
If n-words did not contribute negation, and were merely negative polarity items, then an answer like (27) should be at least ambiguous between a double-negation reading and a single-negation reading. This is because the context would make available two possible answer meanings "I ate nothing" and "I didn't eat nothing," each of which would license the use of an n-word fragment answer. For example, following Guerzoni and Alonso-Ovalle (2003), one might assume that the double negation interpretation of a fragment answer involves recovery of an ellided constistuent containing two negation operators (28b):

(28) a.



[4]As in English, negative questions in Levantine Arabic are often used to express a degree of surprise, amazement, or irony. For example, Maged and Lutfi were at a wedding party, and Maged was surprised by the amount that Lutfi ate. Maged might ask Lutfi the question in (27) by way of expressing his surprise.

b.



On the other hand, if n-words contribute negative meaning, then the double-negation reading expressed by the answer in (27) follows immediately.

5.1.1.3 Negative Meaning from Implicit Negation

A third argument in favor of inherent negation analyses of Levantine Arabic n-words comes from the interpretation of the "*still*-words" *lɪssa-* or *baʕd-*, which can be translated into English as either "still" or "yet" (where "yet" is a negative-polarity-sensitive meaning).

The argument is as follows: The *still*-words are interpreted in a way that provides evidence that negative meaning can in fact be licensed by implicit negation operators recovered from the context. However, even though implicit negation can license negative-polarity-sensitive interpretation for the *still*-words, it cannot do so for n-words. Accordingly, the negative meaning associated with the interpretation of n-words must come from somewhere else.

The availability of the "not yet" interpretation suggests that the *still*-words might be n-words. However, in what follows, I argue the negative meanings in the "not yet" interpretation come from contextually implicit negation, and not from the lexically specified meanings. If n-word fragments also expressed negative meaning courtesy of implicit negation operators, they might also be ambiguous in their interpretation. The fact that they are not suggests that the negative meaning expressed by the use of n-words should not be treated as coming from implicit negation.

The *still*-words in Levantine Arabic include the following (c.f. Stowasser and Ani, 1964; Elihay, 2007):

(29) a. *lɪssa-*: from *la-s-seːʕa* "to-the-hour, until now," used more in Syria, Lebanon, and urban Palestinian dialects, either as a bare stem or hosting a clitic-pronoun correlating with the subject of the clause.[5]

b. *baʕd-*: from Old and Standard Arabic *baʕa* "after, following, still, yet," used more in rural dialects in northern Jordan and Palestine, also either as a bare stem or hosting a clitic-pronoun correlating with the subject of the clause.

c. *ɪssaːʕan*: from "the-hour" with an adverbial ending, used in the Hebron/Khalily dialect of Palestinian.

The *still*-words can be understood as expressing negation in sentence fragments, but need not be, and as such have the appearance of being ambiguous between a negative interpretation and an affirmative one. For example, (30) shows *lɪssa* used as a fragment answer with the negative "not yet" interpretation, while in (31) it has the non-negative "still" interpretation:

(30) Q: štareːt tiðakkarit ɪẗ̪tayyaːra?
bought.12 ticket the-plane
"Have you bought the plane ticket?"

A: **lɪssa** / **lɪssæːtni**
still still.1s
"Not yet," "Still not."

(31) Q: ʔaiy sɪnna ʔɪnti hɛllaʔ?
which year you.fs now
"Which year are you now?"

A: **lɪssa** / **lɪssæːtni** ssɪnna lɪʔuwla.
still still.1s the-year.fs the-first.fs
"Still [in] the first year."

[5]Compare with *ʔɪssa* "now," from *is-seːʕa* "the hour, now."

The same is true for *baʕd*. In (32) it has a negative "not yet" meaning, while in (33) it has the "still" meaning:

(32) Q: ya fariːd, zʊrt waːdi ramm?
voc Fareed visited.12 Wadi Rum
"Fareed, have you visited Wadi Rum?"

A: la.
no
"No."

Q: **baʕdak**?
still-you.ms
"Not yet?" "[You] still [haven't]?"

(33) Q: ya fariːd, ʔɪnta weːn? bɪʔɪrbɪd?
voc Fareed you.ms where in-Irbid
"Fareed, where are you? In Irbid?"

A: ʔa, **baʕdni**.
yes, still-my
"Yes, [I] still [am]."

When these expressions co-occur with negation, they are translatable as "yet":

(34) a. hælʕašar daʔaːyiʔ **lɪssa maχ**allaṣɪt?
these-ten minutes.p still not-finished.3fs
"These ten minutes still haven't finished?"

b. lamma hɪm ɪʐɣaːr kæːn ʕaʔlɪha ʐɣiːr **lɪssa** mɪš fæːhmi.
when they small was mind-her small still not understanding.fs
"When they were small, her mind was small, she still isn't smart."

(35) a. **baʕd** maʔaluːlna šeiy.
still not-said.p-to-us thing
"They still haven't told us anything."

b. leːš **baʕdak** maχalaṣtiš?
why still-you.ms not-finished.12-neg
"Why haven't you finished yet?" "Why have you still not finished?"

Assuming Lee's (2008) analysis of the meaning of English *still*,[6] I assume that *lɪssa* and *baʕd* have meanings as in (36):

(36) *baʕd*-(P) or *lɪssa*-(P) uttered with respect to reference time t_R:

i. Presupposes that P holds during an unbroken interval beginning before and leading up to t_R, and that it was possible that P could have ended at some time t' preceding t_R during that interval;

ii. Is true iff P is true at t_R.

These semantics are illustrated in (37) and (38), two sentences with roughly equivalent meaning, but with one containing negation and the other not:

(37) ʔana **baʕdni** ʕazzæːb.
I still-me single
"I'm still single."

i. *Presupposition*: The speaker was single at an unbroken interval beginning at a point in time preceding t_R and leading up to t_R, and the speaker could potentially have stopped being single at some point during that interval.

ii. *Truth condition*: The speaker is single at the speech time.

(38) ʔana **baʕdni** miš mɪtǧawwaz.
I still-me not married
"I am still not married," "I am not married yet."

i. *Presupposition*: The speaker was not married during an unbroken interval beginning at a point in time preceding and leading up to the speech time, and could potentially have stopped being not married at some point during that interval;

[6] See also Löbner (1989; 1999), Michaelis (1993), and Mittwoch (1993).

ii. *Truth condition*: The speaker is not married at the time of speech.

Comparison of (37) and (38) implies that whether the *still*-words are understood in a sentence fragment as expressing negation or affirmation correlates with the conversational background against which the fragment is uttered. If the *still*-word is used in answer to a negative question, it will likely have a "not yet" interpretation, while if used in answer to a positive question, it will likely have a "still" interpretation.

The aspectual interpretation of the clause is also a factor in determining whether the *still*-words have a negative or positive interpretation. For example, consider (30) above, in which *lɪssa* is understood as expressing negation. In each case, the clause includes a predicate with perfective aspect, the question being about whether an event of a particular kind took place (i.e., buying a ticket, visiting Wadi Rum, leaving Jordan).

I conjecture that the negative interpretation for these examples may be due to an incompatibility between the non-negative interpretation of the *still*-words and the meaning of the perfective stems. Both of the questions are polarity questions, expecting a yes-or-no answer. Accordingly, the meanings for the question in (30) and (32) are respectively as follows (I assume for concreteness a semantics for questions in the style of Groenendijk and Stokhof 1984, 1997):

(39) i. (I bought a plane ticket) or (I did not buy a plane ticket)

ii. (I visited Wadi Rum) or (I did not visit Wadi Rum)

For each of these questions, the positive answer describes an event or process that was completed in the past, the occurrence of which is therefore inalterable, because while the results of the event might be undone, the fact that the event took place cannot be changed. According to the definition for *lɪssa*/*baʕd* above, *still*-words presuppose a changeable state in the past, and asserts that this state is unchanged at the evaluation time. The positive answers are incompatible with this presupposition because the state is unchangeable, and, as such, are filtered out, leaving the negative answer as the only compatible answer.

In summary, implicit negation recovered from conversational context can license negative polarity interpretations for the *still*-words,

Generalization 5.1. Implicit negation can license negative polarity interpretation for *still*-words in Levantine Arabic.

However, while implicit negation can provide the negative meaning licensing negative-polarity interpretations for *still*-words, it cannot do so for negative polarity items like *ʕɔmr* "ever," as was discussed above. In other words, if an NPI like *ʕɔmr* "ever" and *iši* "thing" and the *still*-words belonged to the same class, then it should be possible to use *ʕɔmr* as a sentence fragment with a negative-polarity interpretation, which, as was shown above, is an incorrect prediction. The fact that *wala*-phrases and the *never*-words can be used as fragments with a negative interpretation therefore indicates that they must be distinguished from NPIs like *ʕɔmr* in terms of how they are interpreted.

5.2 The Licensing Requirement

In the preceding section I argued that Levantine Arabic n-words are inherently negative: they *contribute* negative meaning. If this is the case, two questions must be answered: why is it that they must be licensed by another negative expression in some configurations, and how is it that their negative meaning can be *non-distinct*?

In this section I make the following observations:

(40) i. Negative-minimizers are never *required* to be licensed, although they *can* be (for at least some speakers).

ii. Phrases headed by the negative scalar focus particle *wala* ("*wala*-phrases") must be licensed if they are interpreted as the rheme/focus/comment portion of a clause. They must be licensed by expressions that contribute the meaning of predicate negation (including sentential negation morphemes and particles such as *biduːn* (or *mɪnduːn*) "without," *qabl* "before," and negative or antiveridical control verbs such as *baṭṭal-ybaṭṭɪl* "stop, cease, quit" or *manaʕ-yɪmnaʕ* "forbid, prevent").

iii. Never-words must always be licensed in a full clause. They can be licensed by the expressions that license *wala*-phrases, as well as others that do not, such as topical *wala*-phrases.

5.2.1 Licensing and Existential Entailments

Native speakers strongly prefer *wala*-phrases to be licensed when they occur in argument or adjunct positions that correspond to existential entailments of the predicate. Such entailments often correspond to various thematic role labels that are commonly assumed, such as *agent/actor*, *patient/theme*, *goal/recipient*, *instrument*, *location*. What is important for the generalization is not whether one assumes a particular set of thematic-role labels, but rather the presence of an existential entailment.

For example, the meaning of *ʔağa-yiːği* "come" entails the existence of someone or something that moves from a distal location to a proximal location at a particular time. Similarly, *ʔɛkal-yoːkɪl* "eat" entails the existence (at the beginning of an eating event) of an object that is consumed as the event progresses, as well as the existence of an entity doing the eating, a location at which the eating takes, and a manner or instrument by means of which the object being eaten is placed in the eater's mouth.

If a *wala*-phrase occupies the syntactic position associated with each of these entailments, native speakers indicate a strong preference for negation marking on the verb:

(41) a. **maː**ğa **wala** **ḥada**
not-came not.even one
"Not even one person came."

b. * ʔağa **wala** **ḥada**.
came not.even one

(42) a. ʔana lyoːm **maː**kalt **wala** **iši**.
I the-day not-ate.1s not.even thing
"[As for me] today I didn't eat a single thing."

b. * ʔana lyoːm ʔakalt **wala** **iši**.
I the-day ate.1s not.even thing

(43) a. lɪṣuraːḥa ʔana mabasawwɪṭ **wala** la**waːḥad** mɪnhʊm liyannhʊm mu
to-honesty I not-ind.1s.vote not.even to-one from-them because-they not
ḥɛlwiːn.
nice.mp
"Honestly, I won't vote for even one of them because they're not pretty."

b. * ʔana basawwɪṭ **wala** la**waːḥad** mɪnhʊm
I ind.1s.vote not.even to-one from-them

(44) a. ɪlmara læːzɪm tɛfham šu ḥuʔuːʔhæ wtaʔtanɪʕ ʔɪnnu
the-woman.fs must 3rfs.understand what rights-her and-3fs.embrace that
hiyya ʔɪnsæːna musawwiyya lɪrrağğʊl
she person.fs equal.fs to-the-man

uʔɪnnu rrağğɪl **mɪš** ʔaḥsan mɪnhæ **wala** bi**ʔiši**.
and-that the-man not better from-her not.even with-thing

"The woman must understand what her rights are and embrace that she is a human being equal to the man and that the man is not better than her in even one way."

b. * rrağğɪl ʔaḥsan mɪnhæ **wala** bi**ʔiši**.
the-man better from-her not.even with-thing

The licensing restriction does not apply to verb meanings per se, but rather to predicate or verb-phrase meanings (c.f. Smith's 1997 term *verb constellation*). This is shown by negative concord sentences with comitative or instrumental adjuncts. For example, an n-word within a comitative PP adjunct has to be licensed, as in (45a), and is unacceptable otherwise (45b). This is not a lexical entailment, because there is no sense in which going to the store entails the presence of a companion. Nonetheless, native speakers consistently require the presence of a negation with a *wala*-phrase inside a comitative prepositional phrase:

(45) a. **ma**ruḥ**tiš** ʕaddukkæːn maʕ **wala** **ḥada**.
not.went.1s.neg to.the.store with not.even one
"I didn't go to the store with even one person."

b. * ruḥt ʕaddukkæːn maʕ **wala** **ḥada**.
went.1s to-the-store with not.even one

(46) a. **ma**ruḥ**tiš** ʕaddukkæːn **wala** maʕ **ḥada**.
not.went.1s.neg to.the.store with not.even one
"I didn't go to the store with even one person."

b. * ruḥt ʕaddukkæːn **wala** maʕ **ḥada**.
went.1s to-the-store with not.even one

There is independent evidence that comitative adjuncts contribute an additional agent argument. This is that comitative adjuncts can affect agreement marking (McNally, 1993; Vassilieva and Larson, 2005), provided that the comitative PP forms a constituent with the subject NP preceding the verb (47):

(47) a. ʔana rʊḥɪt **maʕ sadiːqti** tʕæšeːna.
I went.1s with friend.fs-my dined.1p
"I went with my friend and we had supper."

b. * ʔana rʊḥna maʕ sadiːqti tʕæšeːna.
I went.1p with friend.fs-my dined.1p

(48) a. ʔana **maʕ sadiːqti** rʊḥna tʕæšeːna.
I with friend.fs-my went.1p dined.1p
"I with my friend went and had supper."

b. ʔɪnta **maʕ ʊṣdɪqaːʔak** rʊḥtu lbaḥr.
you.ms with friends-your.ms went.2mp the-sea
"You with your friends went to the sea."

I take this as an indication that the comitative adjunct adds an agent participant role, which corresponds to an existential entailment.

Similarly, Levantine Arabic *qaʕad-yuqʕud* "sit" does not entail the presence of someone sat next to, but it does entail a location sat at, expressed by modification with a *ǧanib* "next to" prepositional phrase requires a negation:

(49) a. **ma**gaʕatt**iš** biǧanıb **wala** **waːḥad**.
not.sat.1s.neg next.to not.even one
"I didn't sit next to a single person."

b. * gaʕatt biǧanıb **wala** **waːḥad**.
sat.1s.neg next.to not.even one

In the case of a prepositional phrase headed by *ǧanib*[7], I assume a meaning like the following:

(50) a. *ḥadd* X:
"in a region r^1 adjacent to a region r^2 that is co-extensive with X"

b. gaʕadit ḥadd mæːǧid.
sat.1s next.to Majid
"I sat next to Majid."
"I sat in a region r^1 adjacent to a region r^2 that was co-extensive with Majid."

Even though the meaning of a *ḥadd*-PP is not entailed by the meaning of *qaʕad-yuqʕud* "sit," addition of a *ḥadd*-PP nevertheless creates an entailment that there is a person or object being sat next to.

5.2.1.1 Exceptions and Information Structure

As was said above, native speakers express a very strong preference for *wala*-phrases to be licensed when they occur in entailed positions. Nevertheless, examples can be found, as rare as they may be, in which a *wala*-phrase in a post-verbal entailed position is not licensed:

[7] Also *ǧamb*, *biǧanib*, and *ḥadd*.

(51) a. ʔana ʔɛkalt **wala** **iši**.
I *ate.1s not.even thing*
"I ate not a thing."

b. ʔana baḥɪbb **wala** **ḥada** mɪn hadoːl.
I *ind.1s.like not.even one* *from these*
"I like not even one of these."

Examples like these seem to occur in a well-defined kind of discourse context, which is a discussion that involves multiple participants sharing opinions and experiences regarding a certain topic. The contributions appear to be *pair-list* answers, meaning that a general question is under discussion (such as "Who ate what today?" or "Who likes which animal?"), and the expectation is that the participants' contributions will make up a list of pairs.

For example, the discussion in (52) involves differ participants answering the question "Which of the following animals do you like: the horse, the elephant, the dog, the cat, the monkey?" Given a set of participants, the question under discussion in the conversation is "Which person likes which animal?," the answers to which will be pair-list answers (c.f. Comorovski, 1994; Krifka, 2001; Reich, 2004):

(52) Q: ʔaiy mɪn ɪlḥaywaːnæːt tɾχtaːr?
which from the-animals *2.choose*

ɪlɪḥṣaːn, ɪlʔasad, ɪlfiːl, ɪlkɛlb, ɪlqaṭṭ, ɪlqʊrd
the-horse the-lion the-elephant the-dog the-cat the-monkey
"Which of the animals do you choose: the horse, the lion, the elephant, the dog, the cat, or the monkey?"

A1: **ʔana** baḥɪbb **ɪlqʊṭṭʊṭ** bɛss bɪtɪʕmɪli ḥasæːsiyya.
I *ind.1s.like the-cat* *but* *ind.3fs.make-to-me allergy*
"*I* like *cats*, but they give me allergies."

A2: bɛss **ʔana** baḥɪbb **wala** **waːḥad** mɪn haðoːl ɪlḥaywaːnæːt.
but *I* *ind.1s.like not.even one* *from these* *the-animals*
"…but *I* like *none* of these animals."

In other words, this is the kind of environment in which, in English, speakers using gapping, "short-answer" sentences, or strong deaccenting on words in a clause whose meanings are understood as given in a discourse context (c.f. Dalrymple et al., 1991; Gardent, 1997, 2000; Krifka, 2001; Reich, 2004, a.o.).[8]

I conjecture, therefore, that something similar is going on with these exceptional examples. The conjecture is that, in a discourse context in which pair-list answers are called for, the speakers who produce these examples are pronouncing the *wala*-phrases with a strong contrastive intonation. On the basis of this conjecture, I suggest further that the licensing restriction arises when *wala*-phrases are pronounced with new-information focus, rather than with contrastive focus.[9]

The correlation between the licensing restriction and entailed syntactic positions might then be analyzed as a correlation between existentially-entailed positions and new-information focus. In other words, native speakers may strongly prefer *wala*-phrases in entailed positions to be licensed because they strongly prefer entailed arguments to be interpreted with new-information focus.

(53) *Conjecture*: *Wala*-phrases must be licensed when they are interpreted with new-information focus.

If this conjecture is correct, then strong association between entailed positions and the licensing requirement is then just an epiphenomenon of a strong association between new-information focus and existentially-entailed positions.

Unfortunately, there is very little research to date on the intonational phonology of Levantine Arabic, or indeed of any Arabic regional dialect, the main contributions so far being Chahal (2001) and Helmuth (2006).[10] Likewise, I am not aware of any research

[8]Sentence A2 in (52) shows the verb *baḥıbb* "I love," which has a stative interpretation. However, lexical aspect does not seem to play a role in the acceptability of unlicensed post-verbal *wala*-phrases, as examples can be found with eventive or punctual verbs such as *ʔɛkal-yoːkıl* "eat."

[9]Helmuth (2006), in a detailed study of intonation in Cairene Egyptian Arabic, notes that new-information focus is unmarked prosodically, while contrastive focus is marked with exaggerated pitch excursion.

[10]Shorter studies include El-Hassan (1990), Chahal (1999) and Kulk et al. (2003). See also Abdalla (1960) for Egyptian Arabic and Moutaouakil (1989) for study of information structure in Standard Arabic.

on the correlation between information structure and argument structure such as has been noted for English and other languages (c.f. Bolinger, 1972; Gussenhoven, 1982; Selkirk 1984, 1995; Jacobs 1991, 1993). Therefore, this conjecture must remain unverified until further foundational work is done on Arabic.

However, in the following section, I provide additional classes of examples in which the licensing requirement does not apply, and in a way that correlates with the information-structural or pragmatic usage of the clause.

5.2.2 Non-Entailed Arguments

Another category of contexts in which *wala*-phrases are not subject to the licensing restriction are arguments that do not correspond to existential entailments. These include objects of "exceptional case-marking" verbs (or ECM-verbs, to use common terminology), which take objects with respect to which they have no entailments, and verbs that take arguments that specify presuppositions.

I consider each of these in turn.

5.2.2.1 ECM Objects

Exceptional-Case-Marking (ECM; otherwise known as "raising-to-object"; I use the term ECM here for familiarity's sake) constructions are one kind of example in which object arguments are not associated with any entailments, and to which the Licensing Restriction is predicted not to apply.

Prediction 5.2.1. The objects of ECM-verbs should not need to be licensed by a negation morpheme.

This prediction is correct.

I begin with a brief review of ECM-constructions. ECM-constructions have been studied at length in English (c.f. Rosenbaum, 1967; Postal, 1974; Chomsky, 1981; Bresnan, 1982; Haegeman, 1994; Pollard and Sag, 1994; Bresnan, 2001; Lasnik and Saito, 1991;

Runner, 1998; Davies and Dubinsky, 2004) as well as in other European languages. They are headed by members of certain classes of verbs, including verbs of perception (*see*, *hear*, *feel*, etc.), belief (*believe*, *know*, *consider*, *regard*, etc.), and desire (*want*, *intend*, *need*, etc.).

An ECM-construction consists of a verb (an "ECM-verb") taking a non-finite complement and an object argument, the latter of which is interpreted as predicated of the former:

(54) a. We now know **Mars** [to be a cold world with a very thin atmosphere of carbon dioxide].

b. U.S. officials have said they believe **bin Laden** [to be hiding somewhere in rugged mountains between the two nations].

c. I saw **three people** [at the airport in Cancun wearing masks].

d. I want **the Arabs** [to be united], but this means uniting the people, not a religion.

e. They want **us** [as pickers and gardeners and maids but then they complain we are here].

The non-finite complement can be a to-infinitive or a "small clause," headed by a bare infinitive or other non-verbal predicate, depending on the particular ECM-verb. For example, each of the examples in (54) shows a verb taking an object (shown in bold) and a complement clause (enclosed in square brackets), with the object noun phrase interpreted as the subject of the complement clause. Some ECM-verbs can also take finite *that*-clauses instead of non-finite complements, in which case the ECM-construction does not obtain. This is particularly the case for *believe* and *know*:

(55) a. U.S. officials have said they believe [that **bin Laden** is hiding somewhere in rugged mountains between the two nations].

b. Today, unfortunately, we know [that **Mars** is a cold dry desert planet with a thin unbreathable carbon dioxide atmosphere].

The objects of ECM-verbs (referred to here as "ECM-objects") are identified as such because they are in the accusative form if they are pronouns (56), and because they are the

subjects of the passive of the ECM-verb in a passive paraphrase (57):[11]

(56) a. I saw **them** [wearing masks].

b. If they want **us** [as fans and consumers], they should allow us in their contests.

(57) a. Although **Mars** is known [to be a cold, rocky planet with no liquid water on its surface], there is plenty of evidence in the form of river-like features and ancient coastlines to suggest that it was warmer and wetter in the past.

b. **Osama bin Laden** is believed [to be hiding in the rugged mountains between Pakistan and Afghanistan].

c. **They** were seen [wearing masks].

d. We want to get away from here just as much as **we** are wanted [to be gone].

e. **We** are needed [to be a presence] because there are no media or internationals.

f. **We** are needed [as a presence].

Although ECM-verbs take objects in the ECM-construction, they have no existential entailments with respect to their objects. This is shown by the observation that ECM-verbs can take expletive particles (such as the existential particle *there*) and idiom chunks as objects.

(58) a. At the last presidential elections, 80 percent of the people who voted for Bush believed **there** to be weapons of mass destruction in Iraq.

b. As I approached the truck, I saw **there** were several teenage hoodlums hanging around it, which made me uneasy.

c. You want **there** to be some unemployment in the economy because that demonstrates, among other things, that workers have some flexibility to leave jobs they're poorly suited for and adapt to an evolving economy.

(59) a. I believe **the cat** [to be out of the bag].

b. I know **the shit** [to have hit the fan].

[11] It is generally claimed that *want* cannot be passivized (c.f. Huddleston and Pullum, 2005, a.o), and my personal intuition is that passivization of *want* is very awkward sounding. Nonetheless, examples can be found in Google-data, and are included here.

If there were existential entailments associated with the object position, a non-referential expression interpreted in that position would be expected to be uninterpretable.

As before, if the sentence is paraphrased with passivization of the verb, the expletive appears as the subject, indicating that it is the object of the verb in the active voice:

(60) a. The reason we went into Iraq is because **there were believed to be** weapons of mass destruction, which I believe there were at a time.

b. Internal workshops featured widely... as significant and defining events in the project for many participants, mainly because **there were seen to be** so many experienced people in the room who participated in excellent group debates, informal discussions and workshop dinners to work through and resolve issues.

(61) a. **The cat** is believed [to be out of the bag].

b. **The shit** is known [to have hit the fan].

The generalization is that passivized ECM-verbs are raising verbs (a.k.a. "raising-to-subject") verbs, like *seem*, *appear*, etc.

Theoretical analyses of ECM-verbs link the object-marking of the ECM-object to the non-finiteness of the complement clause. In transformational accounts, the ECM-object cannot be "licensed" (meaning assigned subjective structural case or a grammatical function) in the non-finite subordinate clause, and so it is licensed with objective structural case or grammatical function.

In constraint-based formalisms such as HPSG or LFG, as well as in CCG, the strategy is to treat ECM-verbs as verbs that take a semantically empty argument that is predicated of an abstraction over an open position in the complement clause. For example, the following CCG type assignments for *believe* and *see* would capture the generalizations:

(62) a. **believe** $\vdash ((\mathsf{s}\backslash\mathsf{np})/(\mathsf{s}_{\mathsf{to}}\backslash\mathsf{np}))/\mathsf{np} : \lambda y.\lambda P_{et}.\lambda x.believe'(Py)x$

b. **see** $\vdash ((\mathsf{s}\backslash\mathsf{np})/(\mathsf{s}_{\mathsf{infin}}\backslash\mathsf{np}))/\mathsf{np} : \lambda y.\lambda P_{et}.\lambda x.see'(Py)x$

Given that the interpretation of an ECM-verb imposes no existential entailments on its object, the roofing restriction predicts that an n-word interpreted as the object of an ECM-verb

should not have to be roofed by a negation morpheme. The question is therefore whether ECM-constructions occur in Levantine Arabic, and, if so, whether the prediction is correct.

ECM-like constructions can also be found in Standard Arabic, in which belief- and desire-verbs take objects (marked in the accusative case) interpreted as the subject (or topic) of a subordinated clausal constituent (63a) marked in the subjunctive mood:[12]

(63) a. ʔaðannu **hından** ʔanna zaydan yuḥıbbuhæ.
1s.believe.indic Hind-acc that Zeid.acc 3.love.indic-her
"I believe Hind to be loved by Zeid."
"I believe [of] Hind that Zeid loves her."

b. fi yawmın mın ılʔayæːmi raʔaytu **waladan** hæːrıban
in day-gen-indef from the-days-gen saw.1s boy-acc.indef fleeing.acc-indef
labaytihi liyanna rıyaːḥa kaθiːra.
to-house-gen-his because the-winds-acc much
"One day I saw a boy running home because there was much wind."

c. ʔalʔahlu yuriːduːna**ni** [ʔan ʔadrʊsa lhandisata
the-folk-nom 3.want.mp.indic-me that 1s.study.subj the-engineering.fs-acc
lmadaniyya].
the-civil.fs
"The family wants me to study civil engineering."

If the verb is passivized, then the subject of the subordinate clause emerges as the subject of the passive verb (as evidenced by the agreement marking on the verb, and the nominative case marking on the subject) (64a):

(64) a. tʊðˌınnu hındʊn ʔanna zaydan yuḥıbbuhæ.
3fs.believe.pass.indic Hind.nom that Zeid.acc 3.love.indic-her
"Hind is believed to be loved by Zeid."
"It is believed of Hind that Zeid loves her."

[12] Arabic subjunctive mood morphology includes agreement-marking, and, as such, does not correspond directly to the English infinitive, which is defined by lacking agreement marking. For this reason, there is no basis for talking about finiteness in Standard Arabic ECM constructions.

The examples can be paraphrased with sentences in which the subject of the subordinate clause is realized as the object of the complementizer *ʔanna* "that" (which assigns it accusative case) and hence as a constituent of the subordinate clause:

(65) a. ʔaḍʊnnu [ʔanna **hɪndan** yuḥɪbbuhæ zaydʊn].
1s.believe.indic that Hind.acc 3.love.indic-her Zeid.nom
"I believe that Hind, Zeid loves her."

b. ʔalʔahlu yuriːduːna [ʔan **ʔa**drʊsa lhandasa].
the-family.nom 3.want.mp.indic irr 1s.study.irr the-engineering
"The family wants me to study engineering."

This parallels the alternation in English between infinitival complement clauses with ECM-subjects, and indicative complement clauses with internal subjects.

Levantine Arabic has verbs that correspond to at least some degree with English ECM-verbs. The verbs in question belong to classes corresponding to the classes to which English ECM-verbs belong to, namely belief-, perception-, and desire-verbs:

(66) a. **Verbs of belief or knowledge**: *ʕɪrɪf-yɪʕraf*, *dara-yadri* "know"; *ʔɪʕtaqad-yaʕtaqɪd*, *ðann-yaðʊnn*, *ʔɪftakar-yɪftakir*, *twaqqaʕ-yɪtwaqqaʕ* "believe"

b. **Verbs of desire**: *bɪdd* "want," *ʔɪḥtæːǧ-yɪḥtæːǧ* "need," *ʔarad-yriːd* "want," *faḍḍal-yfaḍḍɪl* "prefer";

c. **Verbs of sense perception**: *šæːf-yɪšuːf* "see"; *sɪmɪʕ-yɪsmaʕ* "hear," *laːqa-yɪlaːqi* "to find"

These classes of verbs are treated as taking an object argument that is interpreted as the subject or topic of a open sentence corresponding to the complement clause.

Levantine Arabic does not have a direct analog with English ECM-constructions in its morphosyntax. This is because Levantine Arabic lacks the following (c.f. Mohammad, 2000):

(67) i. Productive use of infinitive verb stems. Instead, unmarked inflected imperfect stems (the "y-imperfect": c.f. Blau 1960, 77-95; Mitchell and al Hassan 1994, Ch.2; Brus-

tad 2000, 231-241) are used where infinitives would be used with irrealis interpretations in English;

ii. NP-raising;

iii. Case-marking on common nouns;

iv. A fully productive passive voice (c.f. in particular Retsö 1983; also Blau 1960, 67; Cowell 1964, 234-240; Holes 2004, 135-138).

Because there is no nominal case marking in Levantine Arabic, *wala*-phrases cannot be identified as objects morphologically. In languages like English, the object position/function is identified by passivization: passivization of a verb leads to its object being promoted to subject. However, Levantine Arabic lacks raising to subject (c.f. Mohammad, 2000), so passivization of the verb tells us little about its object. As such, it is not clear to what extent there is a morphosyntactic analog in Levantine Arabic of English ECM-constructions.

However, relevant semantic tests for ECM-verbs still apply. In particular, the Levantine ECM-objects are not associated with lexical entailments. This is shown by two observations: (i) the ECM-object need not correspond to the subject of the complement clause, but rather can correspond to any arguments expressed by a resumptive pronoun, indicating that it is not associated with any particular participant role; (ii) it can be an idiom chunk, and therefore can be non-referential.

For example, the following all show variations on the subject-idiom *ʕasaːfiːr baṭnu bitzaqzɪq* "his stomach is growling" (lit. "his stomach birds are chirping") in which the noun phrase *ʕaṣaːfiːr baṭn* "stomach birds" appears as the object of perception-verbs in (68a-68b) and of a desire verb in (68c):

(68) a. talæːtɪt iyyæːm maːkalɪš, sæːmɪʕ **ʕaṣaːfiːr baṭnu** btizaʔzɪʔ.
three days not-ate-neg hearing birds stomach-his ind-3fs.chirp
"For three days he didn't eat, he was hearing the birds in his stomach chirp."

b. ʔanṣaḥ yalli baʕdi yʔuːm uyɪftar liyanni ḥaːsɪs **ʕaṣaːfiːr**
1s.advise rel after-me 3.rise and-3.breakfast because-I feeling birds

baṭno ʕamtizaʔzɪʔ.

stomach-his prog-3fs.chirp

"I advise whoever comes after me to get up and have breakfast because I feel the birds in his stomach chirping."

c. mabɪddi **lʕaṣfuːr** ɪṭiːr.

not-want.1s the-bird 3.fly

"I don't want it to be time to go home." (lit. "I don't want the bird to fly.")

Like the noun phrase *the cat* in English *the cat is out of the bag*, *ʕaṣaːfiːr baṭnu* "his stomach birds" has a non-referential interpretation.

The object of an ECM-verb need not be interpreted as the subject of the complement clause (c.f. Doron, 1996; Doron and Heycock, 1999), and can rather be interpreted as binding a resumptive pronoun in some other position within the complement, indicating that the ECM-object is not associated with a particular participant role. For example, in (69a-69b) the ECM-object pronouns *ʔiyyæː-hʊm* "them" and *ʔiyyæːk* "you" correspond to the objects of the embedded clause, rather than to their subjects, while (69c) shows the ECM-object corresponding to the object of a prepositional-phrase argument of the embedded clause:[13]

(69) a. bɪddi **ʔiyyæːhʊm** ašuːf**hʊm**.

want.1s obj-them.mp 1s.see-them.mp

"I want to see them."

b. bɪddi **ʔiyyæːk** abuːs**ɪk** beːn ʕuyuːnɪk.

want.1s obj-you 1s.kiss-you.fs between eyes-your

"I want to kiss you between your eyes."

c. bɛss kʊnt bɪddi **ʔiyyæːk** ɛḥki maʕ**ɪk** bišaɣlɛ.

but was.1s want.1s obj-you.fs 1s.speak with-you.fs with-thing

"...but I wanted to speak with you about something."

[13]These examples show the object clitic pronouns attached to the "carrier" morpheme *ʔiyyaeː*, which is semantically empty and serves to host object morphemes when they otherwise lack a host. The verb *bɪdd-* is irregular, showing agreement marking in the form of an object clitic, and in Levantine, one object clitic cannot attach to another. For this reason, the carrier morpheme is used when *bɪdd-* takes a pronominal object.

I conclude that a Levantine Arabic ECM-verb does not assign any particular participant role to its object. To the extent that participant roles are interpreted as existential entailments, then it follows that ECM verbs do not have existential entailments with respect to their objects.

This predicts that a *wala*-phrase occurring as the object of an ECM-verb should not need to be licensed. The prediction is correct, as shown by the following examples with different desire-verbs:

(70) a. bɪddi [**wala** **waːḥad** mɪmhʊm yɪrǧaʕ].
want.1s not-even one from-them 3.return
"I want not even one of them to return."

b. bɪddhʊm [**wala** **mʊntaχɪb** **ʕarabi** ykuːn ɪmniːḥ].
want.3mp not-even representative Arabic 3.be good
"They want not one Arab representative to be good."

(71) a. ʔana ʔariːd **wala** **waːḥad** [yɪsmaʕli] losamaḥt.
I 1s.want not.even one 3.listen-to-me if-permitted.2mp
"I want not even one person to listen to me, if you please."

b. liyanni ʔariːd **wala** **waːḥad** [yɪmnaʕni] ʕamma ʔariːd.
because-I 1s.want not.even one 3.prevent-me from-what 1s.want
"…because I want no one to prevent me from what I want."

(72) a. wana binnɪsba ʔɪli batmanna **wala** **waːḥad** [yɪʕeːš heːk].
and-I with-the-regard to-me ind.1s.wish not.even one 3.live this.ms
"And with regards to myself, I wish no one to live [like] this."

b. ɪlmʊškila ʔɪnni batmanna **wala** **waːḥad** mɪn ɪθθalæːθi [yɪṭlaʕ].
the-problem.fs that-I ind.1s.want not.even one from the-three 3.leave
"The problem is that I wish for not one of the three to leave."

(73) a. bafaḍḍɪl **wala** **ḥada** [yʊdχul hoːn hælmarra].
ind.1s.prefer not.even one 3.enter here this-occasion
"I prefer for no one to enter here this time."

b. ʔana bafaḍḍıl **wala** **ḥadd** [išuːf dumuːʕi].
I ind.1s.prefer not.even one 3.see tears-my
"I prefer for no one to see my tears."

The same applies to instances of *ʔıʕtabar-yıʕtabır* "consider" that have perception-verb (rather than belief-verb) interpretations:

(74) a. ʔana baʕtabır **wala** **luɣa** [ʔariːba lalfʊṣḥa].
I ind.1s.consider not.even language.fs close.fs to-the-pure.fs
"I consider not one language to be close to Standard Arabic."

b. biṣuraːḥa hɛllaʔ bihælwaʔit baʕtabır **wala** **ṣadiːʔa** [mʊχlıṣa].
honestly now in-this-time ind.1s.consider not.even friend.fs loyal.fs
"Honestly, I now consider not one friend to be loyal."

(75) Q: ʔıða kʊnt mæːši wbiṣṣʊdfa ʔıltaqeːt ḥʊbbak ılʔawwal fiṭṭariːq
if were.2ms walking and-by-chance found.2ms love-your.ms the-first in-the-way
maða tafʕal / tafʕaliːna ?
what 2.do 2.do.2fs
"If you were walking and by chance ran into your first love on the way, what would you do?"

A: ʔaʕtabır **wala** **šiː** [ṣaːr]. ʔaṣbaḥat mın maḥaːrım
1s.consider not.even thing happened became.3fs from female.relatives
ılʔæːχıriːn, ḥaraːm.
the-others forbidden
"I would consider nothing to have happened. She [would have] become one of someone else's female relatives, forbidden [to look at]."

However, if the ECM-verb is negated, then the *wala*-phrase has a concord reading:

(76) *bıdd-* "want"

a. mabıddi [**wala** **waːḥad** yʊqʕʊd ǧɛnıbi].
not-want not-even one 3.sit beside-me
"I don't want even one person to sit beside me."

b. bɪddiːš [**wala** **waːḥad** yɪʕrɪf ʕʊmri].
want.1s-neg not-even one 3.know age-my
"I don't want even one person to know my age."

(77) *tmanna-yɪtmanna* "wish"

a. ʔana filḥaʔiːʔa **ma**batmanna **wala** **waːḥad** fiːhʊm [yɪtɣayyar],
I in-the-truth not-ind.1s.wish not.even one in-them 3.change
ʔɪtʕawwadna ʕalkʊll.
got.used.1p to-the-all
"I, truthfully, don't want even one of them to change. We have gotten used to all of them."

b. waɬɬaːhi ʔana laʔeːt ʔɪnnu kʊllhʊm saʕbiːn ʕaleːy **ma**batmanna **wala**
by-God I found.1s that all-them hard.p upon-me not-ind.1s.wish not.even
waḥdi [tmarr ʕaleːy].
one.fs 3fs.pass upon-me
"By God, I have found that they're all hard on me. I don't wish for even one of them to pass me by."

(78) *raːd-yriːd* "want"

a. **maː**riːd **wala** **ḥada** [yɪbki ʕaleːya].
not-1s.want not.even one 3.cry upon-me
"I don't want even one person to cry for me."

b. ʔana mabariːd **wala** **waːḥad** [yɪtrak ɪlmʊntada].
I not-ind.1s-want not.even one 3.leave the-club
"I don't want even one person to leave the club."

(79) *ʔɪʕtabar-yaʕtabɪr* "regard, consider"

a. læːkɪn ʔana šaχṣiyyan **maː**ʕtabɪr **wala** **waːḥad** fiːhʊm [ʔɪslæːmi].
but I personally not-1s.consider not.even one in-them Islamic
"...but I personally don't consider even one of them to be Islamic."

b. ʔana **ma**baʕtabɪr **wala** **laḥḍa** biḥiyæːti ḥɛlwa kʊllha
I not.ind.1s.consider not.even moment.fs in-life.fs-my nice.fs all-her

seːʔa.

bad.fs

"I don't consider even one moment of my life [to be] nice, it's all bad."

(80) *šæːf-yšuːf* "see"

a. bɛss lɪlḥeːn **ma**šʊft **wala** **waːḥad** yɪmši bɪššawæːrɪʕ.
but to-thenow not-saw.1s not.even one 3.walk in-the-streets
"…but until now, I haven't seen even one person walking in the streets."

b. wałła **ma**šʊft **wala** **waḥdi** [tɪmši biššawæːrɪʕ].
by-God not-saw.1s not.even one.fs 3fs.walk in-the-streets
"By God, I haven't seen even one [woman] walking in the streets."

(81) *sɪmɪʕ-yɪsmaʕ* "hear"

a. biṣuraːḥa **ma**sɪmɪʕɪt **wala** **šaχṣ** yitkallam ʕan hæːði lǧamʕiyya.
with-honesty not-heard.1s not.even person 3.speak about this.fs the-group.fs
"Honestly, I haven't heard one person speak about this group."

b. masɪmɪʕt **wala** **bani ʔadam** [ʕamyɪštɛki mɪn hælχaṭwa].
not-heard.1s not.even son Adam prog-3.complain from this-the-step.fs
"I haven't heard even one son of Adam complain about this step."

To summarize, Levantine Arabic has verbs that share with English ECM-verbs the properties that they predicate the meaning of an object argument of the meaning of a complement clause, and that they have no entailments with respect to the object. The licensing restriction correctly predicts that *wala*-phrases occurring in the object position of such verbs should not be subject to a licensing preference. However, if the verb is negated, then the *wala*-phrase has a negative concord interpretation.

5.2.2.2 Presuppositional Arguments

In this section I consider a class of examples in which the licensing requirement does not apply to *wala*-phrase, because the wala-phrase is not in an existentially-entailed position,

but rather a witness to a presupposition. As I will show, in such cases, the licensing requirement does not apply, supporting the analysis of the licensing condition as a matter of entailment.

This involves the Levantine Arabic equivalents of English *agree*, the most common of which is *ittafaq-yittafiq-maʕ* "agree with," *waːfaq-ywaːfiq-maʕ* "agree with, accept," *waqaf-yaqaf-maʕ* "stand with" (I refer to them as the *agree*-verbs). The *agree*-verbs are remarkable in that they optionally take a prepositional phrase object with the preposition *maʕ* "with" that is not subject to the licensing requirement:

(82) a. ʔana mɪttafɪg maʕ **wala waːḥad** fiːku.
I agreeing with not.even one in-you.mp
"I agree with not even one of you."

b. ʔana mɪttafɪg **wala** maʕ **waːḥad** fiːku.
I agreeing not.even with one in-you.mp
"I agree not even with one of you."

(83) a. ʔana mʊtaffɪq maʕ **wala kɪlmi** mɪn ɪlli qʊltiːhæ.
I agreeing with not.even word.fs from rel said.2fs-her
"I am in agreement with not one word of what you said."

b. ʔana mʊtaffɪq **wala** maʕ **kɪlmi** mɪn ɪlli qʊltiːhæ.
I agreeing not.even with word.fs from rel said.2fs-her
"I am in agreement not with one word of what you said."

If the verb is negated, the sentence can have a negative concord reading for the sentence:

(84) a. ʔana **mɪš** mɪttafɪg maʕ **wala waːḥad** fiːku.
I not agreeing with not.even one in-you.mp
"I don't agree with even one of you."

b. ʔana **mɪš** mɪttafɪg **wala** maʕ **waːḥad** fiːku.
I not agreeing not.even with one in-you.mp
"[I] don't agree even with one of you."

(85) a. ʔana **mıš** muttafıq **wala** maʕ **kilmi** mın ılli qʊltiːha.
I not agreeing with not.even word from rel said.2fs-her
"I don't agree even with one word of what you said."

b. ʔana **mıš** muttafıq maʕ **wala** **kilmi** mın kalæːmak.
I not agreeing with not.even word from talk-your
"I don't agree with even one word of your talk."

c. ʔana **mıš** muttafıq **wala** maʕ **kilmi** mın kalæːmak.
I not agreeing not.even with word from talk-your
"I don't agree even with one word of your talk."

This means that *wala*-phrases used as arguments of the *agree*-verbs can be licensed, but need not be.

The *maʕ*-PP can also be used alone as a predicate to express the meaning of *agree*, in which case the same pattern occurs. Negation can be expressed by a *wala*-phrase in the PP (86a-b), or by concurrent negation between it and a negation morpheme (86):[14]

(86) a. ʔana maʕ **wala** **waːḥad** fiːku.
I with not.even one in-you.mp
"I'm with not even one of you."

b. ʔana **wala** maʕ **waːḥad** fiːku.
I not.even with one in-you.mp
"I'm not even with one of you."

Once again, negating the predicate allows for a negative concord interpretation:

(87) a. ʔana **mıš** maʕ **wala** **waːḥad** fiːku.
I not with not.even one in-you.mp
"I'm not with even one of you."

b. (ʔana) **mu wala** **maʕ waːḥad**, χalliːhʊm yıṭabbšu baʕḍ.
I not not.even with one let.imp-them 3.smash.p reflex
"I'm not even with one [of them]. Let them smash each other up."

[14]Some native speakers reject permutation of *wala* and *maʕ* in (86b).

Examples like this can also have double-negation interpretations, as in the following naturally-occurring example:

(88) ʔana mu maʕ wala ḥada. ʔana maʕ ʔałła.
I not with not.even one I with God
"I'm not with no one. I'm with God."

I argue that the *maʕ*-phrases do not have to be licensed because they do the *maʕ*-phrase selected by an *agree*-verb is not an existentially-entailed argument. By this I mean that the interpretetation of an *agree*-verb does not entail the existence of a colocutor with whom the agent of the verb shares an opinon. Instead, I argue that the interpretation of an *agree*-verb presupposes the existence of a colocutor, and that *maʕ*-phrase specifies or identifies a witness to this presupposition.

In order to discuss the presuppositions of the *agree*-verbs, I assume that they (like English *agree*) presuppose the following when used in a given discourse context D (c.f. Lahiri, 2002):

(89) a. A topic of discussion T in D, where T is a question meaning;

b. A (non-empty) set of conversation participants Y;

c. A (non-empty) set of beliefs P that are possible answers to T or to sub-questions of T;

d. A (non-empty) relation $R_{opinion}$ from Y to P pairing each conversation participant with the beliefs in P that he or she holds. Each such pair is an "opinion";

e. That for each y in Y and each p in P, y believes either p or $\neg p$.

In terms of its asserted meaning, the entailments of *ittafaq-yttafiq* are very much those of *itwaqqaʕ-yɪtwaqqaʕ* or other verbs meaning "believe," such as *fakkar-yfakkɪr* "think," *iʕtaqad-yaʕtaqid* "believe," or *saddaq-ysaddiq* "believe," the difference being that *agree* has a complex set of presuppositions.

For example, (90) uttered against a context C merely asserts that its subject believes some proposition p that is understood from C. (90) is also understood as expressing that p

is the opinion of some other participant y. However, I argue that this is an implicature or inference, rather than an entailment:

(90) a. battafiq / ʔana muttafiq.
ind.1s.agree I agreeing
"I agree."

b. *Presupposition*: Some person y (other than the speaker) believes some proposition q (i.e. D there is an opinion $\langle y,\ p\rangle$ in C).

c. *Assertion*: The speaker believes p.

d. *Implicature*: $p = q$

The meaning of a simple example like (91a) can then be broken down as in (91b-91d):

(91) a. ʔana muttafiq maʕak ʔɪmnu lǧoːw ḥɛlu lyoːm.
I agreeing with-you.ms that the-weather nice the-day
"I agree with you that the weather is nice today."

b. $[\![$*ʔana muttafiq*$]\!]^{M,g,w}$ presupposes that some y other than the speaker believes some q, and asserts that the speaker believes p.

c. $[\![$*maʕak*$]\!]^{M,g,w}$ asserts that y is a singular male colocutor.

d. $[\![$*ʔɪmnu lǧ aw ḥɛlu*$]\!]^{M,g,w}$ asserts that p = "the weather is nice today."

The claim that *ittafaq-yttafiq* (and indeed English *agree*) do not entail the sharing of an opinion is counterintuitive, and so calls for some justification.

When an *agree*-verb is used alone as in (92a), the content of the opinion and the identity of its advocate are understood from the context. It can optionally take as arguments: (i) a comitative prepositional phrase (headed by *maʕ* "with") specifying which member or members y of Y (the set of conversation partners) — or, to put it differently, which members of the domain of the $R_{opinion}$-relation — are under discussion (92b); (ii) a prepositional phrase expressing the belief presupposed to be held — that is, which member of the range of $R_{opinion}$-relation — as in (92c); (iii) alternately a subordinate clause specifying the opinion

(92d); (iv) or both a PP and a subordinate clause specifying the content of the presupposed opinion (92e):

(92) a. ʔana battafıq.
I ind.1s.agree
"I agree."

b. ʔana battafıg **maʕak**.
I ind.1s.agree with-you.ms
"I agree with you."

c. battafıg **maʕ** ra:yak.
ind.1s.agree with view-your.ms
"I agree with your view."

d. ʔana muttafıq [**ınn** ıṣṣada:qa maṭlu:ba be:n ızzawǧe:n].
I agree that the-friendship required.fs between the-spouses
"I agree that friendship is required between spouses."

e. battafiʔ maʕak [**ınnu** ʔaktar ılbanæ:t bıku:nu muχlıṣæ:t ʔaktar mın ıššabæ:b].
ind.1s.agree with-you.ms that most the-girls ind.3.be.p faithful.fp more from the-boys
"I agree with you that most girls will be faithful more than boys."

That this is the case — *agree*-verbs presuppose, rather than entail, the existence of a conversation partner with an opinion — is shown by the usual tests for presuppositions (c.f. Karttunen and Peters, 1979, a.m.o.): projection out of the scope of negation and out of the antecedent clauses of conditional sentences, and cancellation. For example, (93a) asserts that the speaker does not agree with some (contextually implicit) opinion, but still presupposes that the opinion is held by the listener, showing the presupposition to project out of the scope of the negation. Likewise, (93b) shows *agree* in the antecedent clause of a counterfactual conditional sentence, and the presupposition persists, namely that the listener has a opinion.

(93) a. ʔana **mɪš muttafɪg** maʕak
I not agreeing with-you.ms
"I'm not in agreement with you."

b. [ʔɪza **ʔɪttafaʔɪt** maʕak] bakuːn ʔawwal waːḥad baradd ubaʔuːl
if agreed.1s with-you.ms ind.1s.be first one ind.1s.reply and-ind.1s.say
maʕak haʔʔ.
with-you.ms truth
"If I agree with you, I'll be the first to reply and say 'you're right'."

Likewise, the presupposition can be cancelled. Consider a context in which two friends, Abed and Bilal, are talking about foods they like, with the thought in the background that they might go get something to eat. Abed says (94A) and in doing so presupposes that Bilal likes pizza, and implies that they might go get some. Bilal, who does not actually like pizza as much, says (94B), negating the verb and in doing so correcting the presupposition without challenging the asserted content of Abed's utterance:

(94) A: ʔana mɪtaffɪg maʕak ʔɪmn ɪlbiːtza zæːkiyya.
I agreeing with-you.ms that the-pizza tasty.fs
"I agree with you that pizza is tasty."

Presupposition: Bilal likes pizza.

Assertion: Abed likes pizza.

B: biṣuraːḥa baḥɪbbɪš biːtza kθiːr. bɛss ʔɪða bɪddak biːtza maʕɪndiːš
with-honesty ind.1s.love-neg pizza much but if want.2ms pizza not-at-me-neg
maʕna.
prevention
"Honestly, I don't like pizza much, but if you want pizza, I don't object."

That the existence of an opinion is presupposed is also shown by the standard projection tests:

(95) a. [ʔɪða btɪtaffɪg ʔɪmnu ɪlbiːtza zæːkiyya], yaɬla χaliːna nruːḥ noːkɪl.
if ind.2ms.agree that the-pizza tasty.fs come.on let.imper-us 1p.go 1p.eat

"If you agree that pizza is tasty, let's go eat."

b. ʔɪnta bittafɪg ʔɪnnu lbiːtza zæːkiyya?
you.ms ind.2ms.agree that the-pizza tasty.fs
"Do you agree that pizza is tasty?"

c. ṭayyɪb, ɪbtɪttafɪgɪš ʔɪnnu lbiːtza zæːkiyya.
OK ind.2ms.agree-neg that the-pizza tasty.fs
"OK, you don't agree that pizza is tasty."

The truth-conditional meaning of the *agree*-verbs is simply belief: "x agrees that P" asserts that "x believes P." It does not actually entail that the subject shares an opinion with one of his or her conversation partners. For example, (92d) asserts simply that the speaker believes that friendship is necessary between spouses. The implication that x shares belief P with some other conversation partner y arises as an implicature or inference.

This claim is perhaps controversial. However, it is supported by the observation that this meaning component can be cancelled, as shown by examples like (96), in which Bilal's use of *agree* in the second sentence echoes or parallels Abed's use in the first. However, Bilal does not actually share speaker Abed's opinion, and in fact believes the opposite:

(96) A: battafɪg maʕ ɪlli bɪguːlu ʔɪmn ubaːma ʔafḍal mɪn buːš.
ind.1s.agree with rel ind.3.say.mp that Obama preferable from Bush
"I agree with those that say that Obama is preferable to Bush."

B: waʔana battafɪg ʔɪmnak mɪš ʕaːrɪf šu btɪḥki
and-I ind.1s.agre that-you.ms not knowing what ind.2.say

ʕašæːn maːfi farg beːnhʊm.
because not-exist difference between-them.mp

"And I agree that you don't know what you're talking about because there's no difference between them."

Bilal expresses that he thinks Abed's opinion is wrong by asserting that Abed doesn't know what he's talking about. In doing so, he does not contradict himself. Rather, his use of an

agree-verb here both echoes Abed's use of the same verb in (96A), and expresses a degree of sarcasm.

If *ʔɪttafaq-yattafɪq* entailed that Bilal shared Abed's opinion, then (96B) should entail a contradiction. It does not. I conclude therefore that *ʔɪttafaq-yɪttafɪq* does not entail the existence of someone with whom the subject shares an opinion.[15]

This conclusion is somewhat counterintuitive, because there is an intuition that to say "I agree" necessarily means that I share some opinion. However, this can be derived as an inference. For example, suppose that Abed and Bilal are discussing foods they like, and Abed says (98):

(98) A: ḥasḃ raːʔi ɪlmʊχχ zæːki.
according view-my the-brains tasty
"In my opinion brains are tasty."

B: ʔana mɪttafɪg.
I agreeing
"I agree."

Assuming a question-answer model of discourse congruence (c.f. Roberts, 1996; Büring,

[15]The same can be said of English *agree*, as shown by the following naturally-occurring example of a disagreement between two speakers Cindy and Tom, who have very different ideas about the state of law enforcement in their county. In the exchange, Speaker T uses *agree* multiple times to actually contradict what his conversation partner is saying:

(97) C: I do know Sheriff Young and his investigators work 24/7 to get drugs and thugs off the streets and are doing a good job of it. Yes crime is up. BUT..not just in Gadsden County. Crime is up all over the country. The economy is the worst it has ever been and some criminals rob just to survive. Others due to just plain greed and too lazy to work. This will be my last post to you as we have different views on this issue and that obviously will not change. Have a good weekend and stay warm.

T: I guess we will have to **disagree** Cindy. After all, I have talked to the people and not turned a blind eye. I **agree** crime in Gadsden has gone up, not down. I **agree** that the paperwork the deputies are required to fill out to make an arrest has gone up not down, in an effort to discourage arrests and therefore pad the stats. *I* ***agree*** *that you have no idea what is going on in the county.*

In other words, Speaker T is using the verb *agree* to say emphatically that he does not share Speaker C's view of things, and, even more so, that Speaker C is wrong and ill-informed. If *agree* entailed sharing of opinions, Speaker T would be contradicting himself. However, if *agree* merely has an implicature that opinions are shared, then this use is expected to be felicitous.

1997; Kadmon, 2000; Beaver and Clark, 2008), Abed's utterance of (98) raises as a topic of discussion the question of whether brains are tasty or not in the opinions of the discourse participants. The *current question* (to use Beaver & Clark's term) is therefore the meaning of the question "Does X think that brains are tasty?," where X is Abed or Bilal. Bila," ls statement in (98) therefore answers the subquestion "Does Bilal think that brains are tastythe possible answers to which are that "Bilal thinks brains are tasty" or "Bilal thinks that brains are not tasty."

Analysis of the meaning of a negative concord sentence with an *agree*-verb requires considering that it is a "neg-raising verb": negating it implies negation of its complement proposition (Bartsch, 1973; Horn, 1989; Heim, 2000; Tovena, 2001; Gajewski, 2005, 2007, a.o.). For example, (99a) is understood with the negation scoping over the complement clause: the speaker believes that there is no one who has as many problems as he does. Likewise, (99b), with *ɪttafaq-yttafiq-muttafɪq* "agree," asserts that the speaker believes it is not the exclusive duty of a girl to help her mother, although the negation marks the *agree*-stem rather than the subordinate clause:

(99) a. **batwakkaʕɪš** mnu fiː ʔɪnsæːn ʕɪndu mašæːkɪl akθar mɪni.
ind.1s.believe-neg that exist human at-him problems more from-me
"I don't believe that there's a person that has more problems than me." ⇒
"I believe that there isn't a person that has more problems than me."

b. **mɪš mɪttafɪʔa** ʔɪnnu lbɪnt mɪn wæːǧibhæ tsæːʕɪd ʔɪmmhæ ɪššæːbb
not agreeing.fs that the-girl from duty-her 3fs.help mother-her the-boy
kamæːn læːzɪm isaːʕɪd.
also should 3.help
"[I] don't agree that it's the duty of the girl to help her mother, the boy also should help." ⇒
"I believe that it is not the duty of the girl [alone] to help her mother."

For concreteness, I follow Bartsch (1973), Heim (2000), Tovena (2001) and Gajewski (2005) in treating the Law of the Excluded Middle as a lexical presupposition of neg-raising

predicate:[16]

(100) *The Law of the Excluded Middle*: $p \vee \neg p$

The intuition behind this approach is that, in general, if we do not know p, we cannot conclude $\neg p$, but rather that we don't know. To put it differently, we generally seem to need three truth values: true, false, and unknown. However, certain semantic environments allow the Law of the Excluded Middle to apply, such that if we do not know p, we can conclude $\neg p$. The complements of neg-raising verbs are argued to be one such environment. For example, in the case of neg-raising verbs such as *believe*, my saying "I don't believe P" allows you to conclude that "I believe not P."

(101) a. $[\![$x agree that P$]\!]^{M,g,w}$:
Presupposition: some y other than x believes P and that either x believes P or that x believes $\neg P$.
Assertion: x believes P.

b. $[\![$x not agree that P$]\!]^{M,g,w}$:
Presupposition: some y other than x believes P and that either x believes P or that x believes $\neg P$.
Assertion: x does not believe P.
Neg-Raising Inference: x believes $\neg P$.

Accordingly, negative concord examples with *agree*-verbs give rise to an inference that the speaker has a belief that none of his or her conversation partners share:

(102) a. battafɪgɪš maʕ wala waːḥad fiːku.
ind.1s.agree-neg with not.even one in-you.mp
"I agree with not even one of you."

b. $[\![$*battafɪg maʕ wala waːḥad fiːku*$]\!]^{M,g,w}$:
Presupposition: some y other than x believes some p and either the speaker believes p or the speaker believes $\neg p$.

[16] See Gajewski (2005) for discussion of the pros and cons of this approach.

Assertion: the speaker does not believe some q in P and there is no y in Y with whom the speaker shares some belief p.

Neg-Raising Inference: the speaker believes $\neg q$ and there is no y in Y with whom the speaker shares some belief $p \Rightarrow$ no y in Y believes $\neg q \Rightarrow$ every y in Y believes q.

In the case of Abed and Bilal, the question under discussion is whether or not Bilal thinks brains are tasty. The use of *agree* presupposes that Bilal either thinks they are or that they aren't. Bilal's utterance of (98) is an answer to this question, and, assuming that the non-negative form of the sentence maps onto the positive answer, it will follow from the neg-raising presupposition that Bilal shares Abed's opinion.

I conclude, therefore, that use of an *agree*-verb does not entail the existence of a shared opinion, and hence does not have an existential entailment. This predicts that a *wala*-phrase occurring as the PP-argument of an *agree*-verb should not need to be licensed. As noted above, this prediction is correct.

In the case of *agree*-verbs taking *wala*-phrases as PP-objects, the *wala*-phrase simply negates the idea that there are any conversation partners with whom the subject shares an opinion. For example, (103) has the presuppositions given above, and asserts that the speaker has a belief that he shares with not even one of his or her conversation partners:

(103) ʔana mɪttafɪg maʕ wala wa:ḥad fi:ku.
I agreeing with not.even one in-you.mp
"I agee with not even one of you."

a. *Presuppositions*:

i. There is a set S of interlocutors, a set P of beliefs, and a relation R_{op} from S to P;

ii. For all $p \in P$, either x believes p or x believes $\neg p$.

b. *Assertions*:

i. x believes q.

ii. For no y in S does $q = R_{op}(y)$.

If the verb is negated, then the presuppositions remain the same, but the assertion is that the speaker has no belief q, and again that he or she shares an opinion with not even one of his or her conversation partners.

To summarize, the *agree*-verbs presuppose the existence of one or more conversation partners, and of one or more opinions held by them, but does not entail that the speaker shares any of these opinions. I claim that my analysis offers an explanation for why the *maʕ*-PP argument associated with the *agree*-verbs is not subject to the licensing requirement. A *wala*-phrase in the *maʕ*-PP does not contradict an entailment of the predicate.

5.2.2.3 Summary of Non-Entailed Arguments

In 5.2.2 I have discussed two kinds of example in which n-words do not need to be licensed. I argued that in both cases, the n-words are interpreted as non-entailed arguments: argument positions that do not correspond to an existential argument. This is predicted by the licensing restriction.

5.2.3 Rhetorical Uses of N-Words

In this subsection I discuss kinds of data in which the licensing requirement appears to be ameliorated by pragmatic factors. These are data in which an n-word which should be subject to the licensing requirement appears not to be. In each case, the interpretation of the n-word within the context of the utterance does not entail a contradiction with an existential entailment of its governing predicate. These examples support an entailment-based formulation of the licensing restriction, and argue against an analysis of the licensing restriction based on grammatical generalizations.

There are two such kinds of data. The first shows examples in which n-words have what I call "expressive" interpretations (following Potts, 2003), according to which the negative force is not used in expressing an entailment, but rather in a "meta-judgement" that the speaker makes regarding the significance of the common-noun meaning of the n-

word. The second kind of rhetorical use includes what I call "ironic interpretations," which are examples in which the interpretation of the n-word does contradict an entailment of the governor, but in which this contradiction is deliberately contrasted with a "pseudo-referential" interpretation for ironic or humorous effect.

5.2.3.1 Expressive Interpretations

I refer to the first kind of rhetorical use of n-words as the "expressive" use. This is the use of an n-word to negate any minimal degree of significance or esteem towards a referent, rather than negating the existence of such a referent, the existence of which is assumed or asserted. The negative force of the n-word on this use seems to correspond to an "expressive implicature" in the sense of Potts (2003), a "meta-assertion" that expresses the speaker's attitude towards the truth-conditional or "at-issue" content of the clause.

Let me illustrate with the two naturally-occurring examples in (104) and (105). The first is about the Lebanese pop singer Elisa, of whom the speaker is not a fan:

(104) ʔɛliːsa mɪš mɪn ɪlfaniyyiːn ɪlli ystahlu yɣannu biǧarɛš liyɪmnhæ waːḥdi
Elisa not from the-artists.mp rel 3.deserve.p 3.sing.p in-Jaresh because-she one.fs
mɪtkabbri wɪmaɣruːra **ʕala wala iši**.
conceited.fs and-arrogant.fs upon not.even thing
"Elisa isn't one of the artists who deserve to sing at Jaresh because she's someone who is conceited and arrogant for nothing at all."

In saying that Elisa is "arrogant for no reason at all," the speaker is not denying that Elisa might have reasons that (in Elisa's own estimation) justify arrogance. Rather, the speaker is claiming that whatever Elisa's pretexts for being arrogant might be, the speakers considers them to lack even the minimal degree of significance needed as justification.

Another example is (105), heard from a representative of Royal Jordanian Airlines as she tried to help a customer with a ticketing problem:

(105) ɪlmudiːr huwwa ʔɪlli mʊmkɪn isaːʕdak. ʔana **wala** **iši**.
the-director he rel possible 3.help-you.ms I not.even thing
"The director, he is who can help you. I'm nothing."

The speaker was not literally denying her own existence. Rather, her assertion was that, given her position in her organization, she lacked even the minimal degree of significance or influence necessary to help the customer.

In both of these examples, the *wala*-phrase still has a scalar interpretation. However, instead of ranging over cardinality values as is usually the case, the scalar interpretation seems to range over what one might call a "prestige scale," which is an ordering over degrees of significance or esteem.

Similar examples in which *wala*-phrases occur inside prepositional phrases headed by *ʕala* "upon, because of" are common, and have the same kind of interpretations:

(106) a. musawwi nafsu ḥazeːn **ʕala** **wala** **iši**.
making self-his sa upon not.even thing
"[He] is making himself sad for nothing at all."

b. ʔʊlt ʔana kʊnt χaːyɪf **ʕala** **wala** **šiː**.
said.1s I want.1s fearing upon not.even thing
"I said I was afraid for nothing at all."

In the interpretation of an example of this kind, the *wala*-phrases do not negate the existence of a referent corresponding to the commoun noun components, because they do not negate the minimum value in a cardinality scale, and hence the n-word still retains existential force.

Generalization 5.2. Expressive uses of n-words negate minimal values in a prestige scale and allow existential interpretations of their common-noun meanings.

This generalization makes a prediction: because the expressive use of an n-word does not negate existence, it should not contradict an existential entailment of a predicate it depends on, and hence should not be subject to the licensing requirement.

This prediction appears to be correct. The two following naturally-occurring examples show unlicensed n-words in existentially-entailed positions, but in which they have expressive interpretations:

(107) ya ṣaːḥɪby maːnafaʕ. heːni ǧarrabɪt ʔaʕmɪl faḥɪṣ
voc friend-my not-benefited now tried.1s 1s.do test
ušɛkli **baštaɣil wala šiː næːfɪʕ**.
and-form-my ind.1s.work not-even thing useful
"My friend, it didn't work. Now I have tried to do a test, and it looks like I'm doing not one useful thing."

(108) A: šu kʊnt ɪtsawwi ʔabalma tʊdχʊl ɪlmʊntada?
what were.2ms 2.do before-that 2.enter the-club
"What were you doing before you entered the chat?"
B: kʊnt asawwi **wala išiː**.
was.1s 1s.do not-even thing
"I was doing nothing at all."

In (107), the speaker describes actions that he took in trying to solve a computer problem, then saying that he is doing "nothing useful." If the *wala*-phrase *wala iši næːfɪʕ* were interpreted as negating the existence of something that the speaker is doing, then he would be contridicting himself. Instead, the *wala*-phrase seems to be interpreted as "what I am doing doesn't have even a minimal value of utility."

Likewise, in (108), Speaker A asks Speaker B what she was doing before joining an internet chatroom, to which Speaker B replies that she was doing nothing at all. Once again, the interpretation here seems to be that whatever Speaker B was doing did not have the minimal significance necessary to be worth comment.

Further examples are given in (109):

(109) a. bafakkɪr **biwala šeiy**.
ind.1s.think with-not.even thing
"[I'm] thinking about nothing at all."

b. kæːnat ʕamtɪḥki **ʕan wala šeiy**.
was.3fs prog-3fs.speak about not.even thing
"She was talking about nothing at all."

c. leːš tɪštaɣlu ḥæːlkʊm **biwala ʔiši ʔakiːd**?
why 2.work.p self-your.mp with-not.even thing certain
"Why are you [plural] troubling yourselves over nothing certain?"

d. bɛss baqlab ṣafḥaːt ubatfarraǰ **ʕala wala iši**.
but ind.1s.turn pages and.ind.1s.look upon not.even thing
"[I'm] sitting on the net, just turning pages and looking at nothing."

The interpretation of each of the examples therefore seems to express two thoughts, the second a commentary on the first, as in the following possible paraphrases:

(109') a. I am thinking about something, but it is of no significance or interest.

b. She was talking about something, but it was of no significance or interest.

c. You are troubling yourselves over something, and what you are troubling yourselves about has no degree of certainty, and is therefore not worth troubling yourselves about.

d. I am looking at things on the net, but I have no goal or interest in looking at them.

While I will not try to develop here a full analysis of how these readings arise, I conjecture that they do so when the scalar presupposition against which the n-word is evaluated is coerced into a scale ranging over degrees of relevance, importance, or interest, rather than ranging over cardinalities. This does not result in a contradiction with the existential entailment that talking involves something being talked about, and hence there is no licensing requirement, as in (109b). In contrast, if the n-word is evaluated on a cardinality scale, then a contradiction does arise, giving rise to the licensing requirement.

5.2.3.2 Ironic Interpretations

The second kind of rhetorical use for n-words that I consider is their use for expressing humor and irony. In examples of this kind, the conventional meaning of the n-word is

explitictly presented as contradicting a "pseudo-referential" interpretation, the contradiction providing the irony and hence the humor.

Let me illustrate with the example of a *Juha* joke. Juha is a popular character in Arabic folklore, known for playing tricks on people, or for being tricked himself, and there are scores if not hundreds of jokes or stories about him. In this particular joke, Juha tricks a stupid laborer into loading a pile of firewood onto Juha's donkey for free, shown in translation in (110a). The figurative use of an n-word is the punchline (shown in boldface in 110a, and Arabic in 110b):

(110) a. "Once Juha had collected a load of firewood but he wasn't strong enough to load it onto his donkey. So he went look for someone to help him. He found a fellow who was strong but stupid. The fellow asked "How much do you want to pay me?" Juha said "Nothing."

The fellow said "OK," and loaded the wood for him. When he was done, they prayed together, and then Juha went to go. The fellow said "Hey, where's my money?" Juha said "What money?"

The fellow took Juha to the judge, and the judge said "Juha, you have to pay him what you promised him." Juha said "OK" and handed the fellow an empty purse, and said "I told you **I want to pay you nothing**."

b. bɪddi ʔadfaʕlak **wala iši**.
want.1s 1s.pay-to-you.ms not.even thing
"I want to pay you nothing."

The humor of the joke consists in Juha tricking the laborer into thinking that *wala iši* is a referential expression when it clearly is not. The contradiction is represented iconically with the empty purse.

A similar example is the following:

(111) ʔɪntaχabɪt **wala ḥada**. kæːn ʔašraf mɪn ɪlmuraːšɪḥ ɪθθæːniyyiːn.
voted.1s not.even one was more.honest from the-candidates the-second.mp
"I voted for no one. He was more honest than the other candidates."

In these examples, the *wala*-phrases are not required to be licensed, which appears to correlate with the intentional use of a contradictory meaning. I conclude from this that when a given rhetorical context allows for a contradictory meaning, the licensing restriction does not apply.

Generalization 5.3. The licensing restriction can be violated where the resulting contradiction serves a rhetorical purpose.

5.2.3.3 Summary of Rhetorical Uses

To summarize 5.2.3, two kinds of data show that the licensing restriction can be relaxed when it would otherwise apply. The first are examples in which the n-word can be interpreted such that its scalar semantics can be interpreted with respect to a significance scale rather than over a quantity scale, in which it does not negate the existence of a referent, and hence does not contradict an existential entailment of the predicate. The second are examples in which a contradiction does arise, but is contrasted with a pseudo-referential interpretation.

Although the two kinds of examples show the licensing restriction being relaxed in two ways, they both show that pragmatic or rhetorical factors affect whether the licensing restriction applies or not. This, in turn, supports an analysis of the licensing effect as being an essentially semantic rather than morphosyntactic phenomenon.

5.3 Are Wala-Phrases Quantifiers?

One of the prominent approaches to negative concord in the literature is to treat them as generalized quantifiers of the usual type, which is to say functions of type $(et)t$ denoting relations between sets. The question is whether there is any evidence to support treating *wala*-phrases in this way.

The debate is sometimes framed as being between analyses that treat n-words as

universal quantifiers and those that treat them as existential quantifiers. This theoretical choice is independent of choosing to treat n-words as inherently negative, or as negative polarity items. I have already addressed the question of whether *wala*-phrases are inherently negative, so I will say no more here about approaches that treat them as NPI-quantifiers (c.f. Ladusaw, 1992; Giannakidou, 2000, 2002; Blaszczak, 2001b; Zeijlstra, 2004).

Analyses that treat n-words as negative quantifiers include Zanuttini (1991); Haegeman and Zanuttini (1991, 1996); Watanabe (2004). Some claims have been made that n-words are necessarily negative universal quantifiers, as in (112a), showing a possible meaning for *wala ḥada* "not one person" (c.f. Haegeman and Zanuttini, 1996; Watanabe, 2004), rather than an existential quantifier as in (112b). However, given the equivalence in (112c) this is a spurious distinction:

(112) a. **wala ḥada** $\vdash \lambda P_{et}.\forall x[person'x \rightarrow \neg Px]$

b. **wala ḥada** $\vdash \lambda P_{et}.\neg\exists x[person'x \wedge Px]$

c. $\forall x[Px \rightarrow \neg Qx] \Leftrightarrow \neg\exists x[Px \wedge Qx]$ for all P, Q of type et

What seems to be intended, rather, is that n-words are *strong*-quantifiers, in the sense that they presuppose the existence of a contextually-specified set being quantified over, as in (113a) or (113b):

(113) a. **wala ḥada** $\vdash \lambda P_{et}.\forall x[person'x \cup C \rightarrow \neg Px]$

b. **wala ḥada** $\vdash \lambda P_{et}.\neg\exists x[person'x \cup C \wedge Px]$

One argument that has been made in favor of treating n-words as negative universal quantifiers rather than as (non-negative) existential quantifiers is the "almost-test" (c.f. Zanuttini, 1991; Iordachioaia, 2009, a.o.), which is the observation that, like universal quantifiers, they can be modified by *almost*, or in Levantine Arabic, *taqri:ban*:

(114) a. [**tagri:ban** kʊll bani ʔadam] bɪddu yɪtzawwaǧ.
almost every son Adam want.3ms 3.marry
"Almost every person wants to get married."

b. [**tagri:ban** wala bani ʔadam] bıddu yıṭa:lıg.
almost not.even son Adam want.3ms 3.divorce
"Almost no person wants to get divorced."

However, the almost-test has been challenged as a diagnostic for universal quantifiers, with the claim that it does not identify quantifiers, but rather end-points on scales (c.f. Blaszczak, 2001b; Penka, 2006, a.o.). As discussed above, *wala*-phrases have scalar interpretations, and therefore the fact that they can be modified with *taqri:ban* "almost" is compatible with an analysis of "almost" as an operator over scales.

A stronger argument against treating wala-phrases as strong-quantifiers is their occurance in existential sentences. Like in English, existential sentences in Levantine Arabic are subject to a definiteness restriction (c.f. Hoyt, 2000), meaning that, in the general case, only indefinite noun phrases are felicitious in the subject or "pivot" position of an existential sentence (c.f. Milsark, 1974, 1977; Lumsden, 1988; Zucchi, 1995; McNally, 1998, a.m.o.). Definite noun phrases are acceptable only to the extent that they can be construed with the so-called "list reading":

(115) a. kæ:n fi: **kɛlıb** bılbe:t.
was exist dog in-the-house
"There was a dog in the house."

b. # kæ:n fi: **lkɛlıb** bılbe:t.
was exist the-dog in-the-house
"There was the dog in the house."

Strong-quantifiers pattern with definite noun phrases with respect to the definiteness restriction: they are felicitious only with specific, context-dependent interpretations. However, Levantine *wala*-phrases are not only very common in existential sentences, but possibly occur in existential sentences more frequently than in any other single sentence type:

(116) a. ma:fi wala mʊškila.
not-exist not.even problem

"There isn't a single problem."

b. fišš wala fılısṭi:ni bæ:gi hınæ:k.
exist-neg not.even Palestinian remaining there
"There isn't even one Palestinian remaining there."

Sentences like these are extremely common in everyday Levantine speech, and do not appear to require any kind of special construal (such as a list reading). Rather, they pattern entirely with so-called "weak" indefinite noun phrases in their distribution (c.f. Blaszczak, 2001b)

Of course, *wala*-phrases *can* have presuppositional construal, in the case of strong-*wala* discussed above, in which case they have interpretations not unlike strong-quantifiers. However, the crucial cases are the instances of weak-*wala* phrases, which clearly do not have presuppositional interpretations, but which still undergo negative concord. I conclude, therefore, that n-words with negative concord interpretations are not strong quantifiers.

Chapter 6

Topical Wala-Phrases

Up to this point, I have sketched an analysis of negative concord in Levantine Arabic based on semantic and pragmatic principles, and presented a variety of data to support this position. However, the analysis so far does not provide analyses for two questions:

(1) i. Why are *wala*-phrases able to express negation in pre-verbal position, while *never*-words cannot do so?

ii. Why are pre-verbal *wala*-phrases unable to "roof" post-verbal *wala*-phrases?

In this chapter I address this question in detail, and consider the syntactic and semantic prand that the remainder of the clause is interpreted as a lambda-abstract applied to the topic and answering a salient question about it.

I contrast the topical properties of Levantine *wala*-phrases with the interpretations available for pre-verbal *ḥətta*-phrases in Northwest African (as well as *wala*-phrases in Algerian), which are always subject to a strict licensing requirement, and which always have negative concord interpretations.

I show that this contrast is generally true of how pre-verbal indefinite noun phrases are interpreted in the two regions. Levantine native speakers show a strong preference for interpreting all pre-verbal (or clause-initial) nominals as having topical interpretations, whether definite or indefinite. Northwest African speakers, in contrast, strongly prefer to

interpret clause-initial indefinites as fronted foci with clause-internal interpretations. The contrast in the use of n-words thus follows from a typological difference in word order.

I then show a set of exceptions in Levantine Arabic that seem to prove the rule. This is the "mute-ma" construction, in which a pre-verbal *wala*-phrase has a negative concord interpretation with a following negation marker. This construction is more prevelant in root clauses in Syrian Arabic, but can also be found in Jordanian and Palestinian clauses in which a *wala*-phrase follows another expression that provides a "bracket" for the left-periphery of the clause. I claim that these examples force a non-topical interpretation of the *wala*-phrase, which goes along with a preference for licensing by a following negation marker.

6.1 Topical *Wala*-Phrases and Negative Concord

As was noted above, *wala*-phrases usually express negation in clause-initial position, and, preceding a negation morpheme, precipitate a double-negation intepretation for the sentence. For example, (2a), in which the *wala*-phrase *wala ḥada* "not one person" precedes a bare verb, entails that no one came, while (2b), in which the verb is negated, has a double-negation reading, meaning that everyone came:

(2) a. **wala ḥada** ʔağa ʕalḥafli.
not.even one came to-the-party
"Not even one person came to the party."

b. **wala ḥada ma:**ğa ʕalḥafli.
not.even one not-came to-the-party
"Not one person didn't come to the party." (i.e., "Everybody came to the party.")

Similarly, (3a) might be said by a guest at a hotel who was very displeased by the food served, while (3b) would express the opposite, that the guest was very pleased by the food:

(3) a. **wala yo:m** ʕağabni lʔɛkal.
not.even day pleased-me the-food

"Not one day did the food please me." (i.e., the food was very bad)

b. **wala yoːm ma**ʕağabni lʔɛkal.
not.even day not-pleased-me the-food
"Not one day did the food not please me." (i.e., the food was very good)

The conclusion is that *wala*-phrases in the preverbal position express negative meaning distinctly: they do not undergo negative concord with a following negation, much as been observed for n-words in Spanish, Italian, Catalan and West Flemish (c.f. Laka, 1990; Haegeman and Zanuttini, 1991, 1996; Haegeman, 1997; Suñer, 1995; Herburger, 1998, 2001; Acquaviva, 1999; Matos, 1999; Przepiórkowski, 1999a; de Swart, 1999b; Déprez, 1999; Espinal, 2000a; Guerzoni and Alonso-Ovalle, 2003; Vallduví, 1994; Aranovich, 2007, a.o.). This pattern has been referred to as *non-strict negative concord.* I will use the term *partial negative concord* (c.f. Giannakidou, 2000, 2002; Zeijlstra, 2004).

In this respect, *wala*-phrases contrast with the never-words, which do not express negation distinctly in the pre-verbal position. Instead, pre-verbal never-words must be licensed by negation marking on the verb, and they always have a concord reading. In other words, the never-words must be licensed in all positions in a full clause, and therefore behave much more like n-words in so-called *strict negative concord* configurations, such as have been observed in the Slavic languages, French, Romanian, Japanese, Hungarian and others (c.f. Progovac, 1991, 1992, 1993b, 2000; Przepiórkowski and Kupść, 1997a,b; Blaszczak, 1998, 2001b; Brown, 1999; Richter and Sailer, 1999; de Swart and Sag, 2002; Kiss, 2002; Puskás, 2002; Jablonska, 2003; Richter and Sailer, 2004; Teodorescu, 2004; Watanabe, 2004; Iordachioaia, 2009; Iordachioaia and Richter, 2009).

In fact, as was discussed above, this analysis correctly predicts the behavior of the *never*-words.

(4) a. hælfɪlm, **ʔɛbadan maː**šʊftu.
this-film never not-saw.1s-him
"This film, I have never seen it."

b. * hælfɪlm, **ʔɛbadan** šʊftu.
this-film never saw.1s-him

The behavior of the never-words in Levantine closely resembles the behavior of *ḥətta*-phrases in Maghrebi Arabic (Tunisia, Algeria, Morocco Harrell, 1962, 1965; Harrell and Sobelman, 1966; Marçais, 1977; Benmamoun, 1995, 1997; Ouhalla, 2002; Souag, 2006), phrases headed by the negative scalar focus particle *ḥətta* "not even," which is cognate with Levantine *ḥɪtta* "even." *ḥətta*-phrases must be licensed in both post-verbal and pre-verbal positions:

(5) a. **maːža** **ɪḥtaḥadd** .
not-came not.even-one
"Not even one person came."

b. * žaː **ɪḥtaḥadd**.
came not.even-one

(6) a. **ɪḥtaḥadd** **maːža**.
not.even-one not-came
"Not even one person came."

b. * **ɪḥtaḥadd** žaː.
not.even-one came

The question is why pre-verbal *wala*-phrases are special in Levantine, in that they are not subject to the licensing requirement.

I argue that pre-verbal *wala*-phrases are not subject to the licensing condition because of the interaction with their syntactic position with the information-structural interpretation of the clause. In particular, I argue that examples like these show *wala*-phrases occupying a syntactic position in which they are interpreted as what have been variously called *subjects* of *categorical judgements* (Ladusaw, 2000), *topics* of *topic-comment* structures (Tovena, 1996); *links* in *link-tail* structures (Engdahl and Vallduví, 1996; Przepiórkowski, 1999b), *broad* or *categorical* subjects (Doron, 1996; Doron and Heycock, 1999; Alexopoulou et al., 2003; Heycock and Doron, 2003), or *pivots* (Kroeger, 1993; Falk, 2006).

These terms correspond closely to the term *initial NP* (*al-mubtadi?* "inchoative, that which is begun with") in *nominal sentences* (*ğumal ismiyya*) in Arabic grammatical theory. Clauses of this type are very common in all varieties and registers of Arabic (c.f. Khan 1988; Brustad 2000; Hoyt 2007b). I will use the term *initial-NP*, and refer to the predicate/comment/rheme constituent as the "report" constituent, (from the Arabic *χabar* "report, comment, rheme").[1]

My claim is that pre-verbal *wala*-phrases, in at least some cases, are initial NPs in this sense. Topics are often assumed to be subject to a presupposition of existence or uniqueness (c.f. Lambrecht, 1994, 2001; Peregrin, 1996; Kruijff, 2001). However, this will not do for *wala*-phrases, which are both indefinite and non-referential, and therefore appear to be a kind of topical indefinite (c.f. Cresti, 1995; Jäger, 1996; de Swart, 1999a; Portner and Yubashita, 2001; Portner, 2002). Instead, I assume that the initial-NP must satisfy a *topic presupposition* to the effect that a set of referents is under discussion (c.f. Büring, 1999; Kadmon, 2000), and the *wala*-phrase asserts that none of these referents has the property expressed by the report constituent. The overall effect is that a nominal clause is interpreted as bi-propositional, the initial-NP being intepreted as a proposition, and the report as a second. The interpretation of this structure involves the negation operator contributed by the n-word scoping over the predicate constituent.

This can be implemented in the question-answer approach to information structure (c.f. Roberts 1996; Büring 1999; Kadmon 2000; a.m.o.). According to this framework, the information structure of a sentence is a pair consisting of a question meaning (corresponding to the portion of the sentence marked as being background), and an answer to the question meaning (corresponding to the part of the sentence marked as bearing focus).

In Ch.2, I assumed that question meanings are represented as lambda-terms:

(7) a. ya mɪɾyam, šu ʔɛkalti ɪlyoːm?
voc Miriam what ate.2fs the-day

[1]Similar arguments have been made about Spanish (Ron, 1998; Ordóñez and Treviño, 1999; Suñer, 2006) and Italian (Brunetti, 2009).

"Miriam, what did you eat today?"

b. $\lambda y.ate'y(Miriam')$

Answers, which are indicative sentences with some consituent marked as new information by intonation and/or position in word-order, are interpreted as pairs of a question meaning (its focus presupposition) and a formula that entails an answer to the focus presupposition:

(8) a. mɪryam ʔɛkalat tʊffæːḥa.
Miriam ate.3fs apple
"Miriam ate an apple."

b. $\langle \lambda y.ate'y(Miriam'), ate'(apple')(Miriam') \rangle$

Utterance of a sentence in answer to a question involves checking whether its focus presupposition is congruent with the meaning of the question being answered, where congruence is treated as identity under entailment (c.f. Huet, 1975; Dalrymple et al., 1991; Gardent et al., 1996; Gardent and Kohlhase, 1996a,b, 1997; Gardent, 1997, 2000). If the focus presupposition is congruent, the assertion is added to the discourse context in answer to the question.

I argue that in examples like (2a: repeated here) the interpretation of the initial *wala*-phrase presupposes that the question under discussion is *Who came?*:

(9) 2a **wala ḥada** ʔağa.
not.even one came
"Not even one person came."

a. $\langle \lambda R_{(et)t}.R(\lambda x.came'x),\ \neg\exists x[n.person'x \wedge came'x] \rangle$

In the case of a post-verbal *wala*-phrase, there is no such presupposition, and the question can be used to answer questions ranging from *How many people came?* to *What happened?*:

(10) a. keːf kæːnat ɪlḥafli?
how was.3fs the-party.fs
"How was the party?"

$P(the.party')$

b. mağaːš wala ḥada.
not-came *not.even one*
$\langle came'yx, \neg came'yx \rangle$
"Not one person came."

This is illustrated by the following examples, given with examples of the kinds of questions they might be used to answer, and the interpretations of the initial-NPs and report constituents:

(11) a. **wala ḥada** ʔağa.
not.even one *came*
"Not even one person came."
Question: "Which members of P came to your party?" (for some set P)
Initial-NP: "No one in P was such that…"
Report: "…they came to my party."

b. **ma**ğaːš **wala ḥada**.
not-came not.even one
"Not even one person came."
Question: "How was your party?"
Initial-NP: "My party was such that…"
Report: "here were no people who came."

c. **wala ḥada maː**ğa.
not.even one *not-came*
"Not even one person didn't come."
Question: "Which members of P didn't come to your party?"
Initial-NP: "No one in P was such that…"
Report: "that they didn't come to my party."

Because the initial-NP is interpreted independently of the report, its negative existential entailment does not contradict an existential entailment in the report constituent.

The claim that *wala*-phrases can be initial-NPs is supported by the fact that they frequently appear in *clitic-left-dislocation* structures, in which a pre-verbal *wala*-phrase binds a resumptive pronoun in the remainder constituent:

(12) a. **wala** **waːḥad** [baḥɪbb**u**].
not.even one *ind.1s.like-him*
"There isn't even one of them that I like."

b. **wala** **kɪlmi** [mʊmkɪn agʊllak iyyæː**hæ**].
not.even word.fs *possible 1s.say-to-you.ms obj-her*
"There's not a single word I can say to you."

c. **wala** **kɪlmi** mɪn ɪlli katabt [kʊnt agṣadh**æ**].
not.even word.fs from rel wrote.1s *was.1s 1s.intend-her*
"There's not a single word of what I wrote that I intended."

Furthermore, clitic-left-dislocated *wala*-phrases can bind resumptive pronouns inside syntactic islands, indicating that they are not left-dislocated by extraction from the bound positions.

(13) a. **wala** **waːḥad** kæːnat [$_{NP}$ baṣmat**u**] waːdɪḥa ʔabadan .
not.even one *was.3fs* *print.fs-his* *clear.fs* *never*
"Not one person ever had a clear fingerprint."

b. **wala** **ktæːb** mɪn hælkʊtʊb
not.even book *from these-books*

baʕrɪf [$_{WH}$ miːn kæːn [$_{RC}$ ɪlli katab**u**]].
ind.1s.know *who was* *rel wrote-him*
"Not even one of these books do I know who it was that wrote it."

This topic-like behavior of initial *wala*-phrases follows from a constraint on the interpretation of pre-verbal indefinites in Arabic. Pre-verbal indefinites must be "specific" in a poorly understood sense (c.f. Khan 1988; Brustad 2000; Mohammad 2000; Hoyt 2009; a.o.). *Specific* corresponds neither to definite nor to referentially specific, but rather to "put

forth as topic of discussion" (Khan 1988, Brustad 2000: see also Grimes 1975; Roberts 1996; Büring 1999; Kadmon 2000; a.m.o.). *Wala* + topical indefinite ⇒topical *wala*-NP. Given an analysis of *wala* as a determiner that selects indefinite noun phrases, nothing more needs to be said in order to derive this.

6.2 Pre-Verbal *Wala*-Phrases and Licensing

It was noted above that initial *wala*-phrases cannot provide licensing for predicate-interal *wala*-phrases (14a), although the *maːḥada* "no one" compound can (14b):

(14) a. * **wala ḥada** galli **wala iši**.
not.even one said-to-me not.even thing

b. **maḥadaːš** galli **wala iši**.
not-one-neg said-to-me not.even thing
"No one said a single thing to me."

Nothing in the proposal so far accounts for the unacceptability of examples of this kind. This is mysterious, especially given that topical *wala*-phrases can license the *never*-words:

(15) a. **wala waːḥad** bakat baṣmatu waːdḥa **ʔɛbadan**.
not.even one was.3fs fingerprint-his clear.fs never
"Not one person ever had a clear fingerprint."

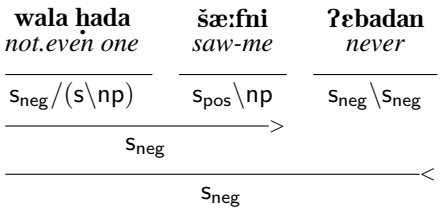
b. ʔana **wala marra ʔɛbadan** kʊnt mɪtkabbari!
I not.even once never was.1s arrogant.fs
"I have never ever once been arrogant!"

c. **wala iši bɪlmarra**, ʔana baḥkiːlak keːf.
not.even thing never I ind.1s.tell-to-you how
"Not one thing ever, I'll tell you why."

As the examples in (15) show, a topical *wala*-phrase can license a *never*-word regardless of the *never*-word's position in in the clause.

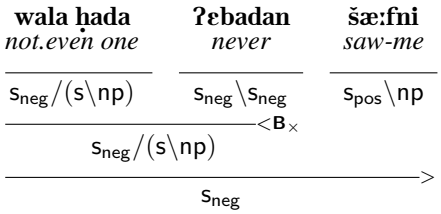
The acceptability of *wala-never* licensing can be captured easily, by assuming that the *never*-words require morphosyntactic negation for licensing, and that *wala* (or at least strong-*wala*) provides the appropriate feature. For example, the sentence in (16a) has the derivation in (16b):

(16) a. **wala ḥada** šæːfni **ʔɛbadan**.
not.even one saw-me never
"No one ever saw me."

b. 

Likewise, if a *never*-word precedes the predicate, it can still be licensed by means of the backward-crossed composition rule:

(17) a. **wala ḥada ʔɛbadan** šæːfni.
not.even never one saw-me
"No one ever saw me."

b. 

The acceptability of (14b) follows if *ḥada* is analyzed as being in a predicate-internal position, with the negation morpheme *maː-* delimiting the left edge of the predicate. This gives the negation immediate scope over the predicate-internal *wala*-phrase (see Hoyt 2007a for detailed argument on treating *maḥada* as a compound, and for the *ḥada* to have a predicate-internal position). The question is therefore why (14a) is unacceptable, while examples with a *never*-word are acceptable.

According to the proposal, (14a) would mean something like "for no member x of P was it the case that there was an event e in which x said something to me, and in which nothing was said to me." Here, the contradiction brought about by the un-licensed *wala*-phrase falls within the scope of the topical *wala*-phrase, with the result that the clause has a meaning that is true in every model and that is therefore uninformative.[2] In other words, even with the topic-comment structure, the initial *wala*-phrase should roof the predicate internal one.

As such, the unacceptability of the sentence must reside in the unacceptability of the report constituent, in the *galli wala iši* "said not even one thing to me". My proposal for analyzing the licensing effect requires that two existential entailments contradict each other.

Two possibilities present themselves as explanations. One involves an appeal to pragmatic principles that filter syntactic derivations on the basis of whether the meanings that they generate are consistent or not. The other is to appeal to a difference in the information structures associated with the use of *wala*-wala phrases and with the *never*-words. Unfortunately, I am not currently aware of evidence that would decide between these to approaches.

The first approach, which I will call the "consistency approach," is a claim that asserting a contradiction can cause the grammatical unacceptability of an utterance. The idea would be that interpretation of a topical wala-phrase would have the pragmatic force of an utterance, where an utterance is modeled as a context update (c.f. Peregrin, 1996; Engdahl and Vallduví, 1996; Kruijff, 2001, a.o.). The interpretation of the comment constituent in the clause, would then be interpreted as a second update (see in particular Peregrin 1996). A topic-comment sentence would be interpreted as consisting of two utterances or contextual updates.

[2]The sentence "No number is both odd and even" has a similar structure: it asserts that no number is such that it has the contradictory property of being simultaneously odd and even, and the sentence is fully acceptable.

One could then assume that context updates are subject to a consistency condition, for example, as has been proposed by Bos (2003) as part of an anaphora resolution algorithm in an implementation of DRT. A clause containing an unlicensed weak-*wala* phrase would fail to be consistent and would be rejected as an invalid update. If consistency is a condition on updates, then this approach might explain why in certain marked pragmatic contexts the licensing requirement on weak-*wala* is relaxed, presumably because an inconsistent update is part of a speaker's goals with an utterance (e.g., for the sake of humor or irony).

The second approach would involve appealing to the information structural interpretations associated with weak-*wala* phrases, as well as assuming that weak-*wala* selects for a morphologically negative argument, as was discussed in Ch.4. As I discussed above, I conjecture that weak scalar-*wala* developed etymologically from nor-*wala*. If this is correct, then it might be that weak scalar-*wala* retains some of the information structure associated with the use of nor-*wala*.

In particular, nor-*wala* appears to have an entirely rhematic function, because it adds additional information to a sequence of previous disjuncts. The idea would then be that weak scalar-*wala*, like not-*wala*, requires licensing within a rhematic constituent, which is to say a constituent which is interpreted as contributing new information. In contrast, strong-*wala*, being topical, might be associated with its information unit, and therefore would not be close enough to a weak-*wala* phrase in terms of information structural constituency to license it.

For example, one could stipulate that weak-*wala* selects for an argument constituent with a *rhematic* or new-information feature, expressed (following Steedman 2000b,a) as a ρ feature, as was suggested in Ch.4:

(18) *Weak-Wala*:

wala "not even" $\vdash (\mathsf{s}_{\mathsf{neg},\rho}\backslash(\mathsf{s}_{\mathsf{neg},\rho}/\mathsf{np}^{\uparrow}_{\rho,indef.sing}))/\mathsf{np}^{\uparrow}_{\rho,indef.sing}$:

$$\lambda P_{(et)\langle dd\rangle}.\lambda Q_{((ed)d)\langle dd\rangle}.\left\langle \begin{array}{c} [\rho]Q([\theta]P) \\ ; \\ [\theta]Q([\rho]P) \end{array} \right\rangle$$

In contrast, strong *wala* selects for an argument that is interpreted as a complete information unit. In Steedman's terms, this would be an ϕ-feature:

(19) *Strong-Wala*:

wala "not even" $\vdash (\mathsf{s}_\phi\backslash(\mathsf{s}_\phi/\mathsf{np}^{\uparrow}_{\phi,indef.sing}))/\mathsf{np}^{\uparrow}_{\phi,indef.sing}$:

$$\lambda P_{(et)\langle dd\rangle}.\lambda Q_{((ed)d)\langle dd\rangle}.\left\langle \begin{array}{c} [\rho]Q([\theta]P) \\ ; \\ [\theta]Q([\rho]P) \end{array} \right\rangle$$

Combining a strong *wala*-phrase and a weak *wala*-phrase in one sentence would then result in type-clashes. If weak-*wala* were to combine directly with a ρ-marked but unnegated predicate, then the neg-feature that weak-*wala* seeks on its argument and the predicate's pos feature (20b):

(20) a. * wala ḥada ʔɛkal wala iši.
not.even one *ate* *not.even thing*

b.

wala ḥada	**ʔɛkal**	**wala iši**
not.even one	*ate*	*not.even thing*
$\mathsf{s}_{\mathsf{neg},\phi}/(\mathsf{s}_\eta\|\mathsf{np}_\eta)$	$(\mathsf{s}_{\mathsf{pos},\rho}\backslash\mathsf{np}_\rho)/\mathsf{np}_\rho$	$(\mathsf{s}_\phi\backslash\mathsf{np}_\phi)\backslash((\mathsf{s}_{\mathsf{neg},\rho}\backslash\mathsf{np}_\rho)/\mathsf{np}_\rho)$
	* * *———————————————< * **	

On the other hand, if strong-*wala* combined with the predicate first, it would provide the correct neg feature for weak-*wala* to combine with, but would be marked with the incorrect information structure feature (21):

(21)

wala ḥada	**ʔɛkal**	**wala iši**
not.even one	*ate*	*not.even thing*
$\mathsf{s}_{\mathsf{neg},\phi}/(\mathsf{s}_\eta\mathsf{n}_\eta)$	$(\mathsf{s}_{\mathsf{pos},\rho}\backslash\mathsf{np}_\rho)/\mathsf{np}_\rho$	$(\mathsf{s}_\phi\backslash\mathsf{np}_\phi)\backslash((\mathsf{s}_{\mathsf{neg},\rho}\backslash\mathsf{np}_\rho)/\mathsf{np}_\rho)$
——————>B		
$\mathsf{s}_{\mathsf{neg},\phi}/\mathsf{np}_\phi$		
* * *———————————————< * **		

This approach would then allow the unacceptability of *wala-wala* licensing to be derived in purely syntactic terms.

Unfortunately, the information-structure approach relies on assumptions about the information structure of negative concord sentences in Levantine Arabic that cannot be currently verified, and, as such, it must remain conjecture for now.

6.3 The Mute-*Ma* Construction

Treating sentence-initial *wala*-phrases as topics is further supported supported by a class of exceptions that appears to prove the rule. These are sentences in which a pre-verbal *wala*-phrase is followed by a negation morpheme, but without a double-negation interpretation: the *maː-* appears not to distinctly contribute negation: it is "mute." This indicates indicates negative concord between the preceding *wala* and the following negation.

For example, the following is a sentence from the Allepo dialect of Syrian Arabic showing the mute-*ma* construction:

(22) a. **wala marra ma**ʔʊltɪli la-ḥæːlak ɪnak bɪtḥɪbbni.
not.even time not-told.2ms-to-me to-self-your that-you 2.love-me
"You have never once told me on your own that you love me."

b. ʔana zaʕlæːna mɪnkʊm, **wala waḥdi ma**raddat ʕaleːya.
I angry.fs from-you.p not.even one.fs not-answered.3fs upon-me
"I'm angry at you. Not even one woman answered me."

c. **wala kɪlmi ma**tɪʃɪf maʕnaːthæʔ
not.even word.fs not-2.know meaning-her
"You don't know the meaning of even one word?"

d. ʔusbuːʕ **wala ktæːb** maːnfataḥ.
week not.even book not-was-opened
"[For] a week, not even one book has been opened."

Native speakers indicate that the *ma:-* can be left out in each of these, with little change in meaning other than a slightly reduced degree of "emphasis."

Examples like these seem to be particularly common in Syrian Arabic. Almost all Syrian speakers interviewed readily accepted the negative concord intepretation of examples like these, while Jordanian and Palestinian speakers rejected the acceptability of such sentences, although they recognized the intended interpretation, and occasionally surprised themselves by producing them. When presented with such examples, Jordanians and Palestinians consistently overlook the *ma:-* and understand the intended meaning. When asked about the *ma:-*, they say that they would not say such things.

Interestingly, at least Jordanians spontaneously produce as well as accept sentences in which a question word such as *le:š* "why" precedes the *wala*-phrase, followed by a "mute" *ma:-*:

(23) a. leːš **wala marra ma**ḥaṭṭeːna waːḥad masiːḥiyyi rayiːs wʊzara?
why not.even time not-put.1s one Christian head ministers
"Why have we not once appointed someone Christian as Prime Minister?"

b. leːš **wala ḥada ma**katab ɪttaʕqiːb?
why not.even one not-wrote the-commentary
"Why didn't even one person write the commentary?"

The Jordanians with whom I have consulted not only accept the presence of the mute-*ma* in sentences like these, but even prefer it.

In general, pre-verbal *wala*-phrases strongly tend to follow question words in Levantine Arabic, whereas left-dislocated constituents strongly tend to precede question words (c.f. Alexopoulou et al. 2003).[3]

(24) a. **leːš wala marra** zʊrtni bɪlmustɛšfa?
why not.even time visited.2ms-me in-the-hospital
"Why didn't you even once visit me in the hospital?"

[3]This suggests Rizzi's (1997) generalizations regarding the order of expressions on the left-periphery of the clause.

b. **leːš wala marra** mazʊrtni bɪlmustɛšfa?
why not.even time not-visited.2ms-me in-the-hospital
"Why didn't you even once visit me in the hospital?"

c. * wala marra leːš zʊrtni bɪlmustɛšfa?
not.even time visited me in-the-hospital

(25) a. **hæðoːl wala marra** šʊfthʊm.
these.p not.even time saw.1s-them
"These, not even once have I seen them."

b. * **wala marra hæðoːl** šʊfthʊm.
not.even time these.p saw.1s-them

This suggests that the presence of the question word *leːš*"why" impels a non-topical (i.e., clause-internal) interpretation of *wala marra*. Assuming, for example, that the IP-constituent is the maximal projection of the clausal nucleus, while left-peripheral expressions are located in the CP or higher, then a *wala*-phrase following a question word is IP-internal:

(26) a. [$_{CP}$ leːš [$_{IP}$ **wala marra maḥaṭṭeːna** waːḥad masiːḥiyyi rayiːs wʊzara?]]
why not.even time not-put.1s one Christian head ministers
"Why have we not once appointed someone Christian as Prime Minister?"

b. [$_{CP}$ leːš [$_{IP}$ **wala ḥada ma**katab ɪttaʔqiːb?]]
why not.even one not-wrote the-commentary
"Why didn't even one person write the commentary?"

This implies a point of regional variation within Levantine Arabic, namely that Syrian speakers are more willing to interpret pre-verbal indefinites as being IP-internal, rather than as left-peripheral, while Jordanian and Palestinian speakers are more strongly inclined to interpret pre-verbal *wala*-phrases as topical.

In all the regional varieties under consideration, the mute-*ma* can occur in subordinate clauses introduced by the subordinating particles *ʔinn-* "that," *liyann-* "because," etc.:

(27) a. hɛssa bɪddkʊm itkuluːli **ʔɪnnu wala ḥada ma**bɪkuːl laʔʊmmu ʾlaʾ.
now want.2ms 2.say.p-to-me that not.even one not-ind.3.say to-mother-his no

"Now you all should tell me that not one says 'no' to his mother." (Palestinian)

b. **wala marra ma**ṭɪlʕɪt ʕala makæːn ʕamm maʕ ṣaːḥɪbti
not.even once not-went.out.1s on place public with friend.fs-my

liyɪmnu **wala marra ma**qarrarna nɪṭlaʕ.
because not.even once not.decided.1p 1p.go-out

"I not even once have gone out in a public place with my girlfriend because not once have we decided to go out." (Palestinian)

This parallels the distribution of the indefinite pronoun *ḥada* "one, anyone." Speakers reject its "naked" use in pre-verbal position in root clauses, in contrast to its acceptability in the *maḥada* "no one" compound or in a *wala*-phrase:

(28) a. mağaːš **ḥada**.
not-came-neg one
"No one came."

b. ma**ḥadaː**š ʔağa.
not-one-neg came
"No one came."

c. wala **ḥada** ʔağa.
not.even one came
"Not even one person came."

d. * **ḥada** maːğa.
one not-came

However, it becomes acceptable in pre-verbal position provided that it is preceded by a question word, and also in pre-verbal position in subordinate clauses:

(29) a. leːš **ḥada** mağaːwab ɣeːri?
why one not-answered other-my
"Why did anyone not answer other than me?"

b. zaʕlæːna liyɪmnu **ḥada** maradd ʕala mawḍuːʕɪk.
angry.fs because one not-answered upon subject-your.fs
[I'm] angry because anyone didn't respond to your thread."

c. wabatmanna ʔɪmnu **ḥada** mayizʕal minni.
and-ind.1s.desire that one not-3.anger from-me
"...and I hope that anyone doesn't get angry at me."

Indefinite NPs in pre-verbal position are ambiguous between a topical interpretation and an existential interpretation (c.f. Mohammad, 2000; Hoyt, 2007b). To one degree or another, speakers prefer to analyze pre-verbal indefinites in root clauses as topical (Syrians less so, Jordanians and Palestinians more so). In subordinate clauses, both analyses seem to be available across varieties. In root clauses, speakers strongly disprefer non-specific indefinite pronouns (*ḥada* "someone, anyone," *iši* "something, anything") in pre-verbal position. In subordinate clauses, speakers freely accept non-specific indefinites in pre-verbal position.

The analysis that I proposed above predicts that IP-internal *wala*-phrases are subject to the licensing requirement, because they are interpreted as part of the same information unit, while left-peripheral *wala*-phrases are not, because they are interpreted differently:

(30) a. [$_{Top}$ **wala ḥada**] [$_{IP}$ **ma**-radd].
not one not-answered
"Not one person didn't answer." (*Double Negation Reading*)

b. [$_{IP}$ **wala ḥada ma**-radd].
not one not-answered
"Not one person answered." (*Negative Concord or "Mute-Ma" Reading*)

As such, I argue that the mute-*ma* construction is the exception that proves the rule.

6.4 Parallels with Maghrebi Arabic

This analysis may also be supported by a comparison with negative concord sentences in Northwest African Arabic, the family of dialects spoken in Algeria, Morocco, and Tunisia (a.k.a. Maghrebi Arabic). Maghrebi Arabic n-words, including the negative scalar focus particle *ḥətta* "not even" (derived from *ḥətta* "even"), *wæːlu* "nothing," and, in Algerian, the familiar *wala* (Harrell 1962, Harrell 1965, Harrell and Sobelman 1966, Marçais 1977, Benmamoun 1997, Souag 2006).[4]

These are n-words according to the definition assumed above: they express negation in fragment answers (31A1, 32A1; examples from Moroccan Arabic), but when used in a clause, they have to be licensed by a negation morpheme, just like in Levantine Arabic (31A2-A3, 32A2-A3):

(31) Q: ya frid, škʊn šʊft?
voc Fred who saw.2ms
"Fred, who did you see?"

A1: **ɪḥtaḥadd**.
not.even-one
"No one," "Not one person."

A2: **ma**šʊft **ɪḥtaḥadd**.
not-saw.1s not.even-one
"I didn't see a single person."

A3: * šʊft **ɪḥtaḥadd**.
saw.1s not.even-one

(32) Q: wæːš kliːt?
what ate.2ms
"What did you eat?"

[4]The sources cited above show *ḥətta* as an independent word. However, based on my impression of my Maghrebi consultants' pronunciation, it appears to be pronounced as a proclitic: *ɪḥtaḥadd* "not even one person" instead of *ḥətta ḥadd*, *ɪḥtaḥaža* "not even one thing" rather than *ḥətta ḥaža*, etc. Additionally, an enclitic form of the indefinite article *ši* "some, any" can also be inserted between *ḥətta* and the stem it associates with: *ɪḥtašiḥadd*, *iḥtašiḥæža*, etc.

A1: **wæːlu**.
nothing
"Nothing."

A2: **ma**kliːt **wæːlu**.
not-ate.1s nothing
"I didn't eat anything."

A3: * kliːt **wæːlu**.
ate.1s nothing

However, unlike in Levantine Arabic, pre-verbal N-words must be licensed in Maghrebi Arabic:

(33) a. **ma**ža **ḥtaḥadd**.
not-came not.even-one
"Not even one person came."

b. * ža **ḥtaḥadd**.
came not.even-one

(34) a. **ɪḥtaḥadd** **ma**ža.
not.even-one not-came
"Not even one person came."

b. * **ɪḥtaḥadd** ža.
not.even-one came

Algerian Arabic has *wala* as an n-word, cognate with Levantine *wala* and used in very much the same way. However, in Algerian, pre-verbal *wala*-phrases must be licensed, while Levantine *wala*-phrases need not be:

(35) a. **ma**ža **wala** **ḥadd**.
not.came not.even one
"Not one person came."

b. * ža **wala** **ḥadd**.
came not.even person

(36) a. **wala ḥadd ma**ža.
not.even one not-came
"Not one person came."

b. * **wala ḥadd** ža.
not.even one came

The question is why there should be this difference between the Maghrebi and Levantine dialects: why do pre-verbal nominal n-words uniformly need to be licensed in Maghrebi, while in Levantine they do not?

While a thorough-going analysis of negative concord in Maghrebi Arabic is beyond the scope of this paper, I would like to suggest that the difference has to do with more general syntactic differences between the two dialect areas, rather than a difference specific to how negative concord is derived. In particular, I argue that pre-verbal indefinites in Maghrebi cannot be interpreted as topical. Because of this, they can only be intepreted as part of the clausal constituent and are hence subject to the licensing requirement. On the other hand, as I argued above, pre-verbal indefinites in Levantine can have either topical or non-topical interpretations, giving rise to the ambiguity between mute-*ma* vs. double-negation constructions. I am therefore suggesting that differences in licensing requirement for pre-verbal n-words correlate with differences in word-order typology.

In support of this, I first note that pre-verbal indefinites in Maghrebi Arabic can have not only non-topical intepretations, but even new information focus interpretations. The following examples of existential sentences in Maghrebi and Levantine show that, in Maghrebi, the pivot or focus noun phrase in an existential can either precede or follow the verb (although native speakers do express a preference for the pivot to follow).

(37) a. **zebda baladiyya** ka:yna?
butter.fs local.fs exist.fs
"Is there local butter?"

b. ka:yna **zabda baladiyya**?
exist.fs butter.fs local.fs

"Is there local butter?"

Levantine speakers, however, reject the pre-verbal word order:

(38) a. fiː **zɛbdi bɛladiyyi**?
exist butter.fs local.fs
"Is there local butter?"

b. * **zɛbdi bɛladiyyi** fiː?
butter.fs local.fs exist

The contrast is particularly stark in the following examples of negative concord in existential sentences: in the Maghrebi examples, the n-word pivot can precede the verb, while in the Levantine it cannot:

(39) *Moroccan*

a. **iḫtaḥadd makaːyn** ɣeːr alˠlaːh waḥdu.
not.even-one not-exist.ms other God self-his
"…there is no one other than God Himself."

b. **makaːyn iḫtaḥadd** ɣeːr alˠlaːh waḥdu.
not-exist.ms not.even-one other God self-his
"And we know that there is no one other than God Himself."

(40) *Levantine*

a. **maːfi** wala ḥada ɣeːr alˠlaːh nafsu.
not-exist not.even one other God self-his
"There is not even one other than God Himself."

b. * wala ḥada **maːfi** ɣeːr alˠlaːh nafsu.
not.even one not-exist other God self-his

I suggest, therefore, that indefinite nouns in Maghrebi Arabic are strongly non-topical. Maghrebi also has more non-topical indefinites in pre-verbal position. Levantine indefinites can have both topical and non-topical construal. *Wala*-phrases that distinctly express negation in clause-initial position are categorical subjects. *Wala*-phrases that do not

do so are predicate-internal subjects. This distribution follows from the properties of *wala* interacting with the interpretation of pre-verbal indefinite NPs. Differences between Levantine and Maghrebi correlate with differences in the interpretation of pre-verbal indefinites.

6.5 Summary

In this chapter I have considered the distribution and interpretation of Levantine *wala*-phrases in the pre-verbal position, and concluded that they have topic-like interpretations, by which I mean that they have an "aboutness" or relevance presupposition, and that the remainder of the clause is applied to them as a lambda-abstract. I argued that the licensing requirement does not apply to pre-verbal *wala*-phrases because the negation operator that they contribute to the meaning of the sentence scopes over the remainder of the clause and hence does not trigger a contradiction with the meaning of the predicate.

I contrasted the topical interpretation of Levantine *wala*-phrases with *ḥatta*-phrases, their analogues in Northwest African Arabic, and argued that in Northwest African, pre-verbal *ḥətta*-phrases do not have a topical interpretation, and are hence interpreted as predicated internally and are thus subject to the licensing requirement. I thus derived the contrast between the two dialect regions in terms of negative concord licensing from a more general typological contrast in terms of word order preference.

I then introduced the "mute-*ma*" construction, a type of sentence found particularly in Syrian Arabic, but also in Jordanian and Palestinian in certain contexts, in which the licensing requirement does seem to apply to pre-verbal *wala*-phrases. I claimed that these are exceptions that prove the rule, in that they show pre-verbal *wala*-phrases with non-topical interpretations, and are therefore more like Northwest African *ḥətta*-phrases in their distribution.

Chapter 7

Conclusion

7.1 Summary

Over the course of the preceeding chapters I have shown in detail that negative concord occurs in certain kinds of negative sentences in the Levantine dialects of Arabic, and presented a theoretical analysis of these kinds of sentences.

The main points were as follows: Levantine Arabic has *n-words* that take part in *negative concord* phenomena, based on the following definitions (Giannakidou, 1998, 2000, 2002; Watanabe, 2004):

(1) i. *Negative expression*: An expression that expresses predicate negation.

ii. *N-word*: A word that can be used to express negation in a sentence fragment.

iii. *Negative concord*: The failure of one or more n-words to express negation *distinctly* when in syntagm with another negative expression.

Following standard usage in the literature on negative concord, I said that if an n-word N undergoes negative concord with another expression E, N is *licensed* by E.

The set of n-words found in Levantine Arabic contains the following categories:

(2) a. Never-words *ʔɛbadan* and *bɪlmarra* "never, not at all";

b. Negative scalar focus particle *wala* "not even one, not a single";

c. Negative minimizers *hawa* and *qɛšal* "nothing" (c.f. English *shit*, *squat*, *diddly*, etc.)

Each class of expression has different properties with respect to negative concord: the *never*-words are *strict* negative concord items (using terminology following Besten 1986 and Giannakidou 1998), requiring licensing by another negative expression in all positions in a full clause; *wala*-phrases are "non-strict" or *partial* negative concord items, because they do not have to be licensed in left-peripheral positions; negative minimizers need not be licensed at all.

The discussion focused closely on wala-phrases, which have the most varied behavior. I argued that they are subject to an essentially semantic licensing requirement:

(3) *Licensing requirement*: Licensing of a wala-phrases is strongly preferred when it is interpreted with new information status and, if not licensed, would be interpreted in a way that would contradict the meaning of the predicate upon which it depends.

I then provided extensive evidence in support of a semantic licensing requirement, to the effect that the requirement is ameliorated when contradictory meaning is intended by a speaker (e.g., for the sake of irony), or when a wala-phrase is not interpreted with a new-information interpretation.

In contrast, the never-words *ʔɛbadan* and *bɪlmarra* "never, not at all" require licensing in all positions, but admit to a wider range of licensors than do wala-phrases. The *never*-words also differ from *wala* in not having a scalar interpretation. Instead, I treated the *never*-words as being subject to a morphosyntactic licensing requirement to the effect that they have to combine with a predicate marked with morphological negation.

I observed that pre-verbal or "topical" *wala*-phrases can license *never*-words, but not other wala-phrases with a new-information interpretation. I conjectured that the difference between the *never*-words and weak *wala*-phrases has to do with intonation and information structure: never-words can combine freely with any constituent, provided that it is headed with a negative particle; while wala-phrases can only combine with a con-

stituent marked as new information. I argued that pre-verbal wala-phrases cannot license post-verbal ones because of a clash in information structure types.

I then compared Levantine Arabic negative concord sentences with their counterparts in Moroccan Arabic, and found that Moroccan n-words pattern with Levantine never-words, rather than with Levantine wala-phrases. I argued that this is because Moroccan does not tolerate pre-verbal definite noun phrases with topical interpretations, while Levantine does. I then argued that the "mute-*ma*" construction supports this claim, by showing that Levantine wala-phrases that can be shown to have non-topical interpretations are subject to the licensing preference.

In the course of the discussion, I have developed a grammatical sketch of Levantine Arabic in the CCG framework (Steedman, 1996, 2000b; Baldridge, 2002; Baldridge and Kruijff, 2003; Steedman and Baldridge, 2010) using a compositional version of Discourse Representation Theory (λ-DRT; Kamp 1981; Kamp and Reyle 1993; Muskens 1994b,a; Kuschert 1996; Eijck and Kamp 1997) as a meaning representation language.

7.2 Contributions and Implications

The data and analyses presented here contribute to the descriptive study of the Arabic dialects, the study of negative concord as a linguistic phenomenon, and to the use of Combinatory Categorial Grammar as a framework for formal linguistic theory.

7.2.1 Contributions to the Study of Colloquial Arabic

Perhaps the most significant contribution of this work is to the study of the Arabic dialects. A wealth of data were presented showing that n-words and negative concord occur in Levantine Arabic. There has been relatively little discussion of n-words in any of the Arabic dialects (c.f. Woidich, 1968; Choueiri, 2002; Al-Tamari, 2001; Souag, 2006), and, to the best of my knowledge, negative concord has not been explicitly identified at all, although the data are there to been seen in published sources (c.f. Blau, 1960; Harrell, 1962, 1965;

Harrell and Sobelman, 1966; Cowell, 1964; Woidich, 1968; Marçais, 1977).

These data show Levantine Arabic to belong to the large family of languages in which negative concord phenomena of some kind have been identified. These data include a detailed description of the set of n-words found in Levantine Arabic, along with their meaning contributions and syntactic distributions. The Levantine data was also compared to an analogous set of data from Northwest African Arabic (Morocco, Agleria, Tunisia) in which negative concord occurs (c.f. Harrell, 1962, 1965; Harrell and Sobelman, 1966; Marçais, 1977). Data of this type have previously been analyzed as involving the licensing and interpretation of negative polarity items (c.f. Benmamoun, 1995, 1997; Ouhalla, 1997), but satisfy the definition of negative concord given above.

Comparison between negative concord sentences in Levantine and Northwest African Arabic revealed that although the words in question have similar distributions and meanings, there are subtle differences, having particularly to do with the interpretation of pre-verbal or clause-initial n-words. In Levantine, left-peripheral wala-phrases generally are not subject to the licensing requirement, because they are interpreted as contributing negation with scope over the entire clause. Northwest African *ḥətta*-phrases (as well as *wala*-phrases in eastern Algeria) are always subject to the licensing restriction in left-peripheral position. In other words, Northwest African n-words are subject to *strict* licensing, in Besten's (1986) and Giannakidou's (1998) terminology, and pattern more closely with Levantine *never*-words than with Levantine *wala*-phrases.

I argued that this difference in the behavior of clause-initial n-words corresponds to a difference between the two dialect regions in terms of how pre-verbal indefinite noun phrases are interpreted: Levantine speakers have a strong preference for interpreting pre-verbal nominals — definite or indefinite — as having topic-like interpretations about which the rest of the clause is asserted. Northwest African speakers, in contrast, have a strong preference for interpreting pre-verbal indefinites as preposed for the sake of contrastive focus.

Consideration of the "mute-*ma*" construction shows Syrian Levantine speakers accept non-topical interpretations of wala-phrases in root clauses more readily than do Jordanian or Palestinian speakers. However, all Levantine speakers accept the mute-*ma* structure in subordinate clauses. This shows that the lack of licensing requirement on left-peripheral wala-phrases is a property of root clauses, and that pre-verbal nominals in Levantine are potentially ambiguous between topical and non-topical interpretations.

The dissertation therefore identifies a subtle difference between Levantine and Northwest African Arabic in terms of word order preferences, as well as within the Levantine region, between Syrian and Jordanian/Palestinian. Furthermore, these differences in word order preferences were used to explain differences in the interpretation of pre-verbal n-words.

7.2.2 Contributions to the Theory of Negative Concord

The dissertation also has a significant contribution to the study of negative concord as a linguistic phenomenon. In particular, it amounts to an extended argument against a "grand unified theory" or "one-size-fits-all" theory of negative concord (c.f. de Swart, 1999b; Watanabe, 2004), as well as against typological characterizations of languages as being (for example) *strict* or *partial* negative concord languages.

This is because, as was shown above, Levantine Arabic has three kinds of n-words, each with different kinds of meaning contribution and subject to different licensing requirements: *wala*-phrases vary in terms of whether they are subject to a semantic licensing requirement, while *never*-words are consistently subject to a licensing requirement that is more syntactic. In other words, even within the set of Levantine Arabic negative concord data, different accounts are called for of how negative concord works.

Likewise, Levantine Arabic shows both *strict* and *partial* negative concord, showing that it is neither a *strict* nor a *partial* negative concord language, but rather a language in which certain lexical items are subject to strict or partial licensing requirement. The locus of

typological generalization should therefore be not at the level of grammars, but at the level of specific lexical items, and a language that appears to have only strict negative concord (such as Northwest African Arabic) is language that has a remarkably uniform set of n-words in its lexicon.

7.2.3 Combinatorial Categorial Grammar and Theory of Grammar

Lastly, the dissertation has several implications for the use of Combinatorial Categorial Grammar as the formal basis of a theory of natural language grammar.

First, it has provided what are (to the best of my knowledge) the first extensive analyses of either Arabic or negative concord data in the CCG framework. Second, it has shown that the way meaning is represented in CCG needs to allow for more subtle generalizations concerning scope than has been allowed for in its standard formulations (c.f. Steedman, 2000b,a). In particular, CCG needs to be able to account for split-scope interpretations, which would require either (i) profusion of higher-order terms in the lambda calculus, or (ii) use of scope underspecification (c.f. Bos, 1996; Kallmeyer and Joshi, 2003; Kallmeyer and Romero, 2004, 2007; Copestake et al., 2005; Baldridge and Kruijff, 2002), or (iii) use of the hybrid logic "jump operator" (c.f. Blackburn and Seligman, 1995; Kruijff, 2001; Baldridge and Kruijff, 2002); or (iv) treatment of indefinites as type e skolem terms (c.f. Steedman, 2000b, 2006).

Likewise, CCG needs to be able to account for derivation of anaphora-like dependencies in the syntax (e.g. for pronominal resumption), which are pervasive in the grammars of both Standard Arabic and the dialects (c.f. Bakir, 1980; Shlonsky, 1992; Doron, 1996; Lalami, 1996; Demirdache, 1997; Aoun and Benmamoun, 1998; Doron and Heycock, 1999; Alexopoulou et al., 2003; Aoun and Choueiri, 2000; Aoun et al., 2001; Aoun and Li, 2003; Choueiri, 2002; Aoun et al., 2001; Heycock and Doron, 2003; Malkawi and Guilliot, 2007, a.o.), as well as in other languages (c.f. Pollock, 1989; Alexopoulou, 1999; Alexopoulou et al., 2003; Heycock and Doron, 2003, a.o.).

Lastly, in addition to whatever theoretical interest the data may have, this is of potential practical use, as CCG is quickly becoming a standard framework for a variety of tasks in computational lingusitics, including parsing, generation, and sentiment analysis. For example, should work that has been done converting the Penn Treebank to a CCGbank (c.f. Hockenmeier, 2003) be extended to the Penn Arabic Treebank, this study could provide a starting point for specifying target CCG categories. Also, specification of a grammar to allow for negative concord meanings would improve the accuracy of a parsing system generating semantic representations, as well as generation tasks. Another area in which correct treatment of negative concord is important is sentence- or phrase-level sentiment analysis (c.f. Wilson et al., 2005, 2009; Abbasi et al., 2008; Jia et al., 2009), in which the correct interpretation of multiple negative expressions is necessary for determining the correct polarity of a sentence (see in particular Jia et al., 2009).

7.3 Directions for Future Work

As detailed as the data coverage has been here, much of it is still preliminary and represents no more than an initial foray into what is largely linguistic *terra incognita*. For example, very little has been said about the topic of *long-distance* negative concord, by which is meant the licensing of n-words dependent on subordinate clauses by negation morphemes at higher levels of embedding. This topic has been largely ignored here, although it was central to work at earlier stages of the project (c.f. Hoyt, 2006).

This is because fieldwork revealed a tremendous degree of variation between native speakers in terms of when long-distance negative concord is considered acceptable. This variation in intuition was in contrast to the remarkably consistent intuitions that native speakers reported for, say, the licensing requirement on entailed arguments, or the availability of double-negation readings for n-words used as fragment answers to negative questions.

At least the following factors were found to influence judgements:

(4) a. Distance between n-word and licensor (in terms of words);

b. Mood of subordinate clause (subjunctive vs indicative);

c. Availability of "neg-raising" interpertation for subordinating predicate;

d. Intonation;

e. Frequency of subordinating verb in corpus of recorded Levantine conversation (c.f. Maamouri et al., 2005).

Addressing long-distance negative concord would require extensive groundwork in the syntax, semantics, and prosody of subordinating clauses in Levantine Arabic, work which is worthy of a dissertation in and of itself.

7.3.1 Intonation and Negative Sentences in Levantine Arabic

As was discussed above, there is an intuition that negative concord licensing interacts in important ways with intonation. The set of n-words used in Levantine Arabic are all interpreted with some kind of focus-meaning, involving contrast or consideration of alternatives. The use of specific intonation patterns is also implicated in focus interpretation.

However, there has been very little detailed work on intonation in the Arabic dialects in general, much less on Levantine. Exceptions include Chahal (1999, 2001); Helmuth (2006). Furthermore, there needs to be detailed study of intonation patterns in negative sentences generally, and in negative concord sentences in particular. Because of this lack, this intuition concerning the interaction of negative concord and intonation has to remain an intuition until further foundational work has been done on Arabic intonation.

However, I conjucture that n-words with strong interpretations have different intonation properties than do those with weak interpretations, and that restrictions on long-distance negative concord may be a matter of intonation, requiring that n-words combine with a single constituent containing a licensing negation (c.f. Blaszczak and Gärtner, 2005). If research bears this out, intonational restrictions on locality and negative concord could be formalized in CCG using an adaptation of Steedman's (1992; 2000a; 2000b) theory of intonation.

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